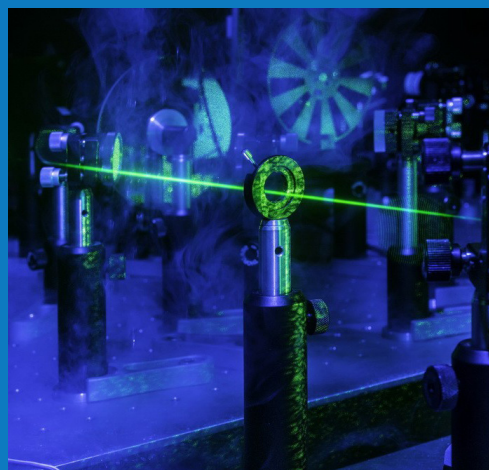
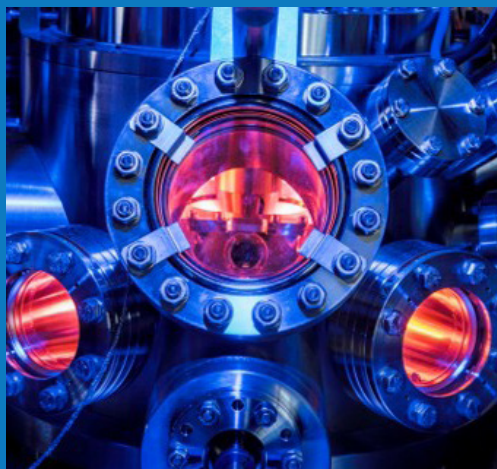
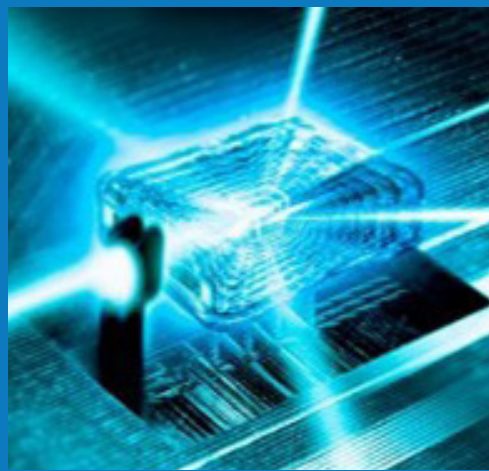
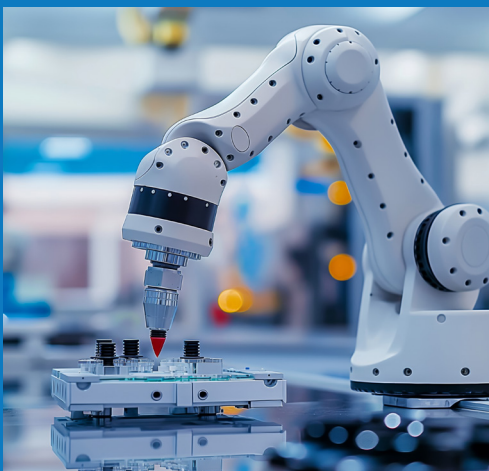
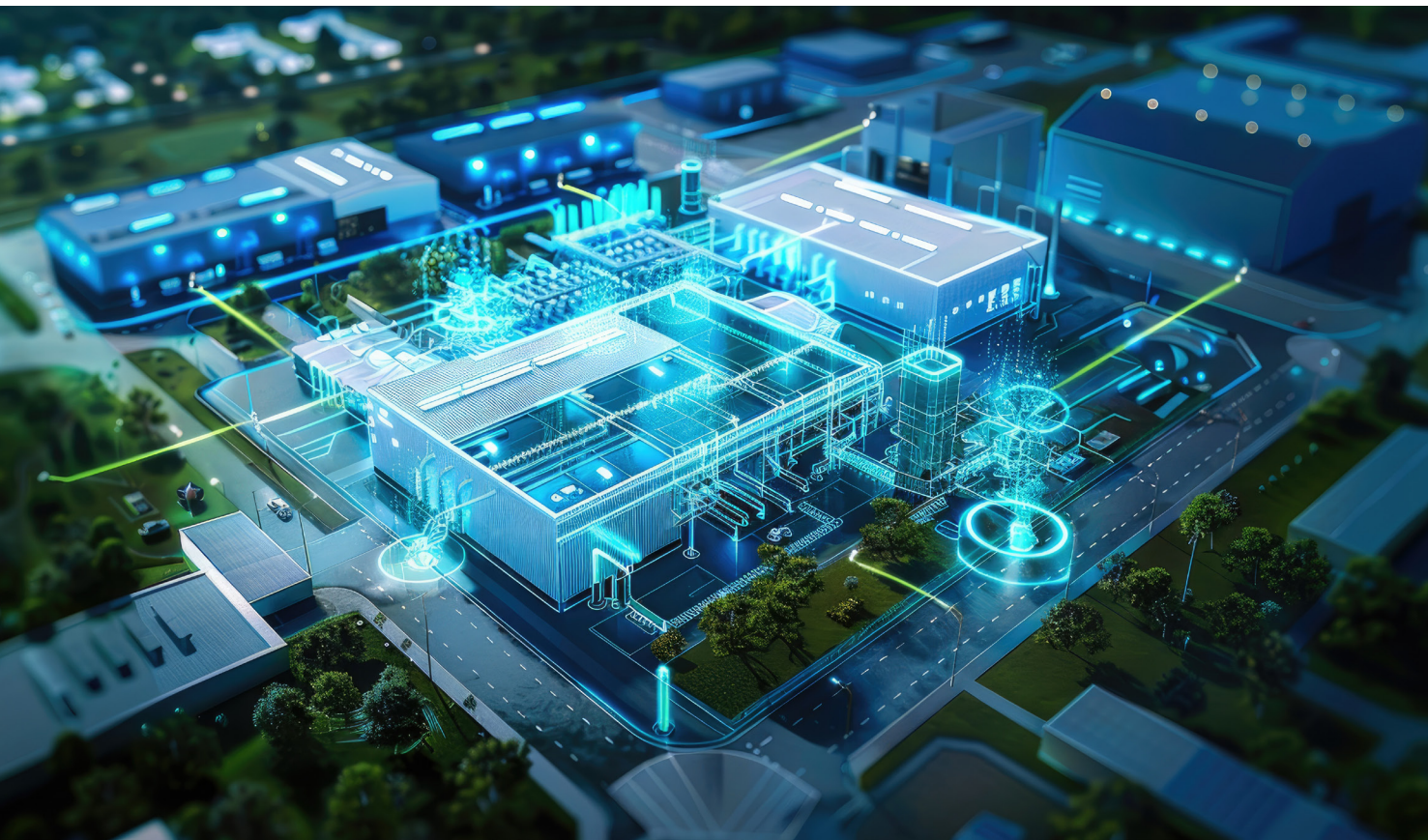






Vir: Adobe Stock / Source: Adobe Stock

VSEBINA / CONTENT

- 4 O partnerstvu / *About Partnership*
- 5 Cilji / *Our Mission*
- 6 Nacionalni demonstracijski center Pametne tovarne (NDC PT) /
National Demonstration Centre Smart Factories (NDC SF)
- 9 Fokusna področja / *Research Areas*
- 14 Tehnologije / *Technologies*
- 17 Člani SRIP ToP - Podjetja / *SRIP FoF Members - Companies*
- 73 Člani SRIP ToP - Institucije / *SRIP FoF Members - Institutions*

O PARTNERSTVU

Inštitut Jožef Stefan je v okviru strategije pametne specializacije (S5) koordinator strateško razvojno – inovacijskega partnerstva Tovarne prihodnosti (SRIP ToP). Naše poslanstvo je pospeševanje preobrazbe slovenske industrije v pametne tovarne, visoko avtomatizirane in trajnostno naravnane proizvodne sisteme. SRIP ToP je namenjen povezovanju in spodbujanju sodelovanja med akademskimi institucijami, podjetji, ostalimi in državo.

S partnerji in strokovnimi službami ustvarjamo podporno okolje za industrijo in akademske institucije, ki omogoča učinkovito soočanje z izzivi prihodnosti na področju razvoja kadrov. Naš namen je pospeševanje prenosa znanja in tehnologij v industrijsko prakso ter spodbujanje ustvarjanja novih vsebin, ki podpirajo nadaljnji razvoj človeških virov na podjetniški in akademski ravni.

Struktura SRIP ToP temelji na dvodimenzionalni matriki, ki združuje horizontalne mreže (HOM) s ključnimi omogočitenimi tehnologijami (KET) ter vertikalne vrednostne verige (VVV), kar omogoča povezovanje in sinergijo različnih področij. HOM/KET so ključnega pomena za inovacijska prizadevanja SRIP ToP, saj zagotavljajo raziskovalno in inovacijsko zmogljivost za celoten inovacijski sistem. Razvijamo in skrbimo za 5 osnovnih HOM/KET:

- Robotika
- Tehnologije vodenja,
- Sodobne proizvodne tehnologije za materiale ter nano in kvantne tehnologije,
- Fotonika in
- Plazemske tehnologije

S tesnim sodelovanjem z našimi vzpostavljenimi vertikalnimi vrednostnimi verigami (VVV) razvijamo inovativne izdelke, storitve in tehnologije. V SRIP ToP vključujemo naslednje VVV:

- Robotski in laserski sistemi in komponente,
- Inteligentni sistemi vodenja za tovarne prihodnosti,
- Pametna mehatronska orodja,
- Napredne zelene tehnologije in
- Pametne tovarne.

ABOUT PARTNERSHIP

Within the framework of the Smart Specialisation Strategy (S5), the Jožef Stefan Institute is the coordinator of the Strategic Research and Innovation Partnership Factories of the Future (SRIP FoF). Our mission is to accelerate the transformation of Slovenian industry into Smart Factories, highly automated and sustainably oriented production systems. SRIP FoF aims to connect and foster collaboration between academic institutions, industry, others and the government.

Together with our partners and professional services, we provide a supportive environment for industry and academic institutions to effectively address the workforce development challenges of the future. Our aim is to foster the transfer of knowledge and technology into industry and to encourage the creation of new content that supports the development of human resources at both corporate and academic levels.

The structure of the SRIP FoF is based on a two-dimensional matrix combining Horizontal Networks (HOMs) with Key Enabling Technologies (KETs) and Vertical Value Chains (VVCs), allowing integration and synergy between different areas. HOM/KETs are key to the innovation efforts of the SRIP FoF as they provide research and innovation capacity for the whole innovation system. We develop and maintain 5 core HOM/KETs:

- Robotics,
- Control Technologies,
- Advanced Manufacturing Technologies for Materials, Nano and Quantum Technologies,
- Photonics and
- Plasma technologies

By working closely with our established Vertical Value Chains (VVCs), we develop innovative products, services and technologies. The VVCs in SRIP FoF include:

- Robotic and Laser Systems and Components,
- Intelligent control systems for the Factories of the Future,
- Smart Mechatronic Tools,
- Advanced Green Technologies and
- Smart Factories.

CILJI

Naš primarni cilji so povezovanje slovenskih raziskovalnih in inovacijskih znanj ter industrijskih in akademskih izkušenj za razvoj prebojnih rešitev za tovarne prihodnosti. Poseben poudarek je na razvoju novih izdelkov, storitev in tehnologij, z močno osredotočenostjo na zeleni prehod in digitalno preobrazbo. Partnerstvo omogoča učinkovitejšo proizvodnjo z uvedbo prilagodljivih in inteligentnih proizvodnih procesov, ki povečujejo produktivnost, zagotavljajo konkurenčnost v mednarodnem merilu in podpirajo trajnostni razvoj.

Poleg spodbujanja poslovnih in raziskovalnih sinergij na področju tovarnih prihodnosti, SRIP ToP podpira podjetja pri preboju na globalne trge. S ciljno usmerjenostjo na nišna področja omogoča slovenskim podjetjem, da se uveljavijo kot pomembni evropski ponudniki inovativnih rešitev.

Da bi našim članom zagotovili povezanost z globalnimi vrednostnimi verigami, SRIP ToP aktivno sodeluje v številnih mednarodnih pobudah in mrežah. Naša vključenost v organizacije, kot so EIT Manufacturing, EFFRA & MIE, A.SPIRE & Process4Planet, Vanguard, WMF, Hydrogen Europe in S3CoP-SmartRegions ima pozitiven vpliv na naše aktivnosti in širi doseg naših članov na globalnem nivoju.

OUR MISSION

Our main goals are to combine Slovenian research and innovation expertise with industrial and academic experience to develop breakthrough solutions for the factories of the future. Particular emphasis is placed on the development of new products, services and technologies, with a strong focus on the green transition and digital transformation. The partnership enables more efficient production by introducing flexible and intelligent manufacturing processes that increase productivity, ensure international competitiveness and support sustainable development.

In addition to fostering business and research synergies in the area of Factories of the Future, SRIP FoF supports companies in entering global markets. By focusing on niche areas, it is enabling Slovenian companies to establish themselves as one of the major European providers of innovative solutions.

To ensure our members stay connected to global value chains, SRIP FoF actively participates in numerous international initiatives and networks. Our involvement in organisations such as EIT Manufacturing, EFFRA & MIE, A.SPIRE & Process4Planet, Vanguard, WMF, Hydrogen Europe and S3CoP-SmartRegions has a positive impact on our activities and expands global reach of our members.

Nacionalni demonstracijski center Pametne tovarne (NDC PT) - strateški nacionalni instrument za povečanje konkurenčnosti slovenskih proizvodnih podjetij

Slovenija, po vzoru številnih drugih držav, nujno potrebuje strateški instrument na nacionalnem nivoju, ki bo spodbujal povezovanje vseh deležnikov na področju tovarn prihodnosti. Z nacionalnim demonstracijskim centrom Pametne tovarne bomo krepili domača vrhunška znanja, jih internacionalizirali in s tem prispevali h konkurenčnosti, napredku in uspešnosti slovenskega gospodarstva ter splošni blaginji širše skupnosti.

Center bo predstavljal pametno tovarno, delujočo blizu realnega okolja na nivoju prototipov ali demonstratorjev procesov, storitev in izdelkov, omogočal raziskave, izobraževanje, pridobivanje tehnoloških kompetenc in bo prikazal delovanje novih tehnologij ter prenašal znanja iz raziskovalno-razvojnih in inovacijskih okolij v industrijo, upoštevajoč načelo dobrih praks.

NDC PT je kot strateški instrument zasnovan na distribuiranem delovanju z več razvojnimi centri in z virtualnim centrom, ki bo predvsem malim in srednjim podjetjem omogočal učinkovit dostop do novih tehnologij. Predstavljal bo demonstracijsko okolje uporabe tehnologij industrije 4.0/5.0 in ključnih omogočitvenih tehnologij. Obenem bo tudi razvojno in testno okolje za visokotehnološke produkte, tehnologije in procese za proizvodna in zagonska podjetja ter raziskovalne organizacije.

Slovenski industriji in raziskovalnim organizacijam bo NDC PT ponujal naslednje storitve:

- spodbujanje podjetništva in inovacij ter usposabljanje podjetij,
- izvajanje študij izvedljivosti, testiranje, validacija in optimizacija novih izdelkov, storitev, tehnologij in proizvodnih procesov za različna tehnološka področja v realnih pogojih,
- krepitev inovacijskega ekosistema z vzpostavljanjem domačih in mednarodnih povezav med različnimi deležniki,
- spodbujanje tehnološkega in poslovnega prepletanja.

National Demonstration Centre Smart Factories (NDC SF) - a strategic national instrument for increasing the competitiveness of Slovenian manufacturing companies

Slovenia, following the example of many other countries, urgently needs a strategic instrument at national level that promotes the integration of all stakeholders in the field of factories of the future. Through the National Smart Factory Demonstration Centre, we will strengthen domestic cutting-edge knowledge, internationalise it and thus contribute to the competitiveness, progress and success of the Slovenian economy and the overall well-being of the entire community.

The Centre will represent a smart factory, operating close to the real environment at the level of prototypes or demonstrators of processes, services and products, enabling research, education, technological competence, demonstrating the performance of new technologies and transferring knowledge from R&D and innovation environments to industry, following the principle of best practice.

As a strategic instrument, the NDC SM is based on a distributed operation with several development centres and a virtual centre, which will provide efficient access to new technologies, especially for SMEs. It will be a demonstration environment for the application of Industry 4.0/5.0 and key enabling technologies. It will also be a development and testing environment for high-tech products, technologies and processes for manufacturing companies, start-ups and research organisations.

The NDC SF will provide the following services to Slovenian industry and research organisations:

- *Encouraging entrepreneurship and innovation and corporate training,*
- *Conducting feasibility studies, testing, validating and optimising new products, services, technologies and production processes for various technological fields under realistic conditions,*
- *Strengthening of the innovation ecosystem through the establishment of national and international links between the various stakeholders,*
- *Fostering technology and business interactions.*

V načrtovanje NDC PT so vključeni ključni deležniki: Institut »Jožef Stefan«, Fakulteta za strojništvo, Fakulteta za elektrotehniko, Fakulteta za računalništvo in informatiko, vse tri v sklopu Univerze v Ljubljani, Rudolfovo, Razvojni center orodjarstva Slovenije - TECOS, Gospodarska zbornica Slovenije, Kompetenčni center za sisteme in tehnologije vodenja, Univerza v Mariboru in ostali. Center bo odprt za sodelovanje z zainteresiranimi, pri širjenju pa bo izhajal izključno iz kriterija obstoječih kompetenc in kapacitet deležnikov, pridobljenih na področju tovarn prihodnosti.

The key stakeholders involved in the planning of the NDC SF are the Jožef Stefan Institute, the Faculty of Mechanical Engineering, the Faculty of Electrical Engineering, the Faculty of Computer Science and Informatics, all three within the University of Ljubljana, Rudolfovo, the Tooling Development Centre of Slovenia - TECOS, the Chamber of Commerce and Industry of Slovenia, the Competence Centre for Advanced Control Technologies (CC ACT), the University of Maribor and others. The Centre will be open for cooperation with interested parties, and its expansion will be based solely on the criteria of existing competences and capacities of stakeholders acquired in the field of Factories of the Future.



Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič

FOKUSNA PODROČJA

ROBOTSKI IN LASERSKI SISTEMI IN KOMPONENTE



INTELIGENTNI SISTEMI VODENJA ZA TOVARNE
PRIHODNOSTI



PAMETNA MEHATRONSKA ORODJA



NAPREDNE ZELENE TEHNOLOGIJE



PAMETNE TOVARNE



FOCUS AREAS

ROBOTIC AND LASER SYSTEMS AND COMPONENTS

*INTELLIGENT CONTROL SYSTEMS FOR FACTORIES OF
THE FUTURE*

SMART MECHATRONICS TOOLS

ADVANCED GREEN TECHNOLOGIES

SMART FACTORIES

ROBOTSKI IN LASERSKI SISTEMI IN KOMPONENTE *ROBOTIC AND LASER SYSTEM AND COMPONENTS*



Koordinator / *Coordinator:*



Erih Arko
YASAKAWA Ristro d.o.o.
YASAKAWA Slovenija d.o.o.
Lepovče 23
1310 Ribnica, Slovenija
www.yasakawa.eu.com
erih.arko@yasakawa.eu
+386 (0)31 664 476



INTELENTNI SISTEMI VODENJA ZA TOVARNE PRIHODNOSTI *INTELLIGENT CONTROL SYSTEMS FOR FACTORIES OF THE FUTURE*



Koordinator / *Coordinator:*



dr. Giovanni Godena
Zavod KC STV
Tehnološki park 18ž
1000 Ljubljana
giovanni.godena@kcstv.si



PAMETNA MEHATRONSKA ORODJA *SMART MECHATRONICS TOOLS*



Koordinator / *Coordinator:*



dr. Aleš Hancič
TECOS, Razvojni center
orodjarstva Slovenije d.o.o.
Kidričeva ulica 25
3000 Celje, Slovenija
ales.hancic@tecos.si
+386(0)3 490 03 20



PAMETNE TOVARNE *SMART FACTORIES*



Koordinator / *Coordinator:*



Andreja Hliš
GZS
Dimičeva ulica 13
1000 Ljubljana, Slovenija
andreja.hlisc@gzs.si



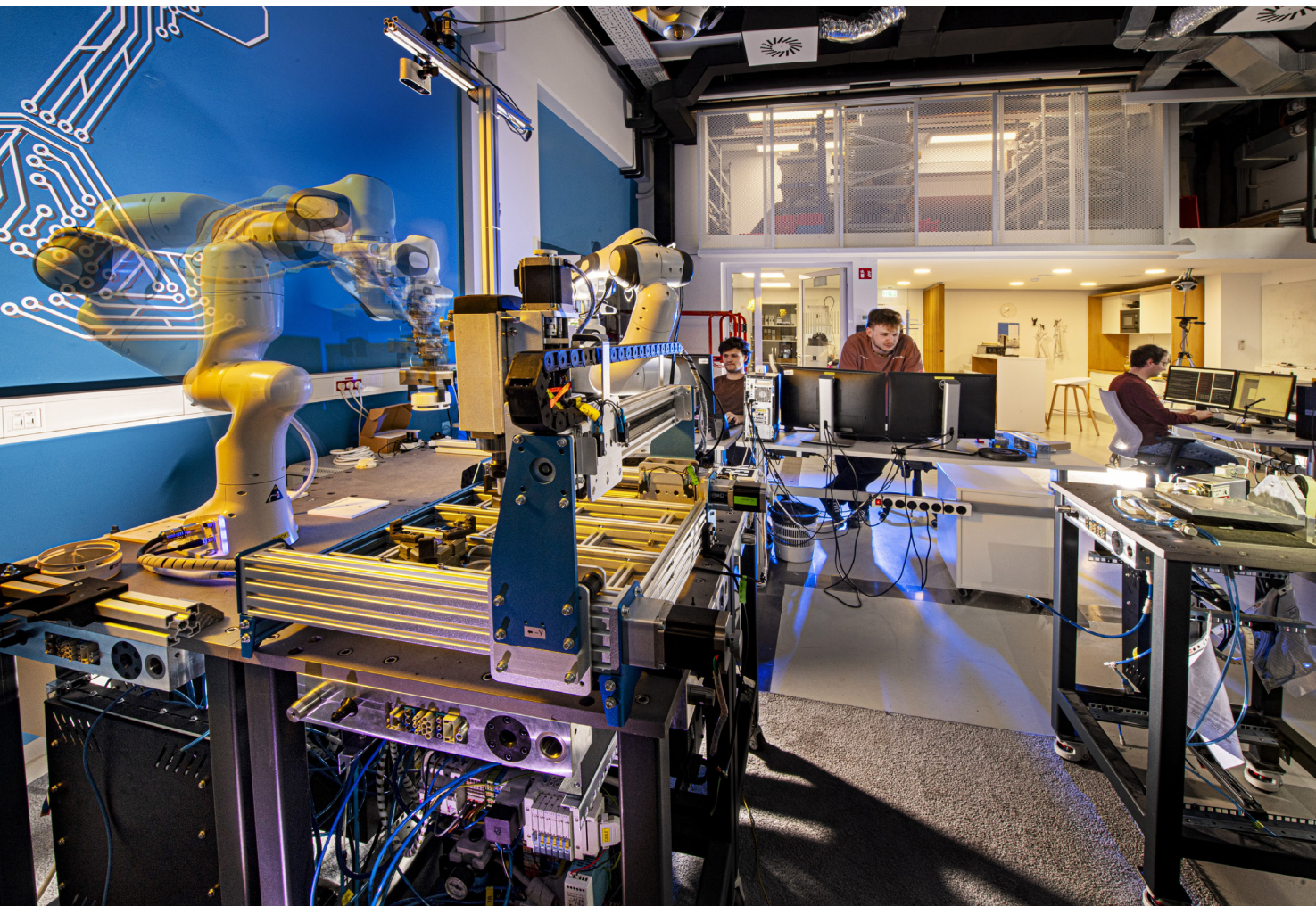
NAPREDNE ZELENE TEHNOLOGIJE
ADVANCED GREEN TECHNOLOGIES

Koordinator / *Coordinator:*



Andrej Kokol
Intrakon d.o.o.
kokolandrej2@gmail.com
tel. št.: +38631637605





Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič

TEHNOLOGIJE

TECHNOLOGIES

ROBOTIKA



ROBOTICS

TEHNOLOGIJE VODENJA



CONTROL TECHNOLOGIES

SODOBNE PROIZVODNE TEHNOLOGIJE ZA
MATERIALE TER NANO IN KVANTNE TEHNOLOGIJE



*MODERN PRODUCTION TECHNOLOGIES
FOR MATERIALS AND NANO AND QUANTUM
TECHNOLOGIES*

FOTONIKA



PHOTONICS

PLAZEMSKJE TEHNOLOGIJE



PLASMA TECHNOLOGIES

ROBOTIKA ROBOTICS

Koordinator / Coordinator:



doc. dr. Igor Kovač
Institut Jožef Stefan
Vodja Centra za razvojno
inovacijsko partnerstvo
Direktor SRIP Tovarne prihodnosti
Svetovalec na odseku za
avtomatiko, biokibernetiko in
robotiko, E2
Tržaška cesta 134
1000 Ljubljana, Slovenija
igor.kovac@ijs.si
+386(0)41 762 277

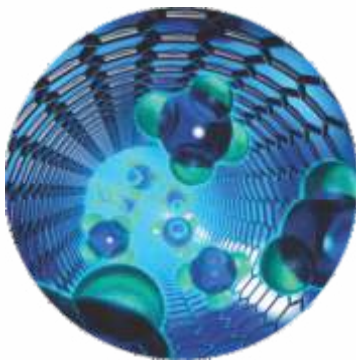


SODOBNE PROIZVODNE TEHNOLOGIJE ZA MATERIALE TER NANO IN KVANTNE TEHNOLOGIJE MODERN PRODUCTION TECHNOLOGIES FOR MATERIALS AND NANO AND QUANTUM TECHNOLOGIES

Koordinator / Coordinator:



dr. Matjaž Spreitzer
Institut Jožef Stefan
K9 - Raziskave sodobnih materialov
Jamova ulica 39
1000 Ljubljana, Slovenija
matjaz.spreitzer@ijs.si
+386(0)1 477 37 05



TEHNOLOGIJE VODENJA CONTROL TECHNOLOGIES

Koordinator / Coordinator:



dr. Miha Glavan
Institut Jožef Stefan
IJS E2 - Sistemi in vodenje
Jamova ulica 39
1000 Ljubljana, Slovenija
miha.glavan@ijs.si
+386(0)14773684



FOTONIKA PHOTONICS

Koordinator / Coordinator:



prof. dr. Rok Petkovšek
UL, Fakulteta za strojništvo
Laboratorij za fotoniko in laserske sisteme (FOLAS)
Aškerčeva cesta 6
1000 Ljubljana, Slovenija
rok.petkovsek@fs.uni-lj.si
+386(0)1 477 16 15



PLAZEMSKJE TEHNOLOGIJE
PLASMA TECHNOLOGIES

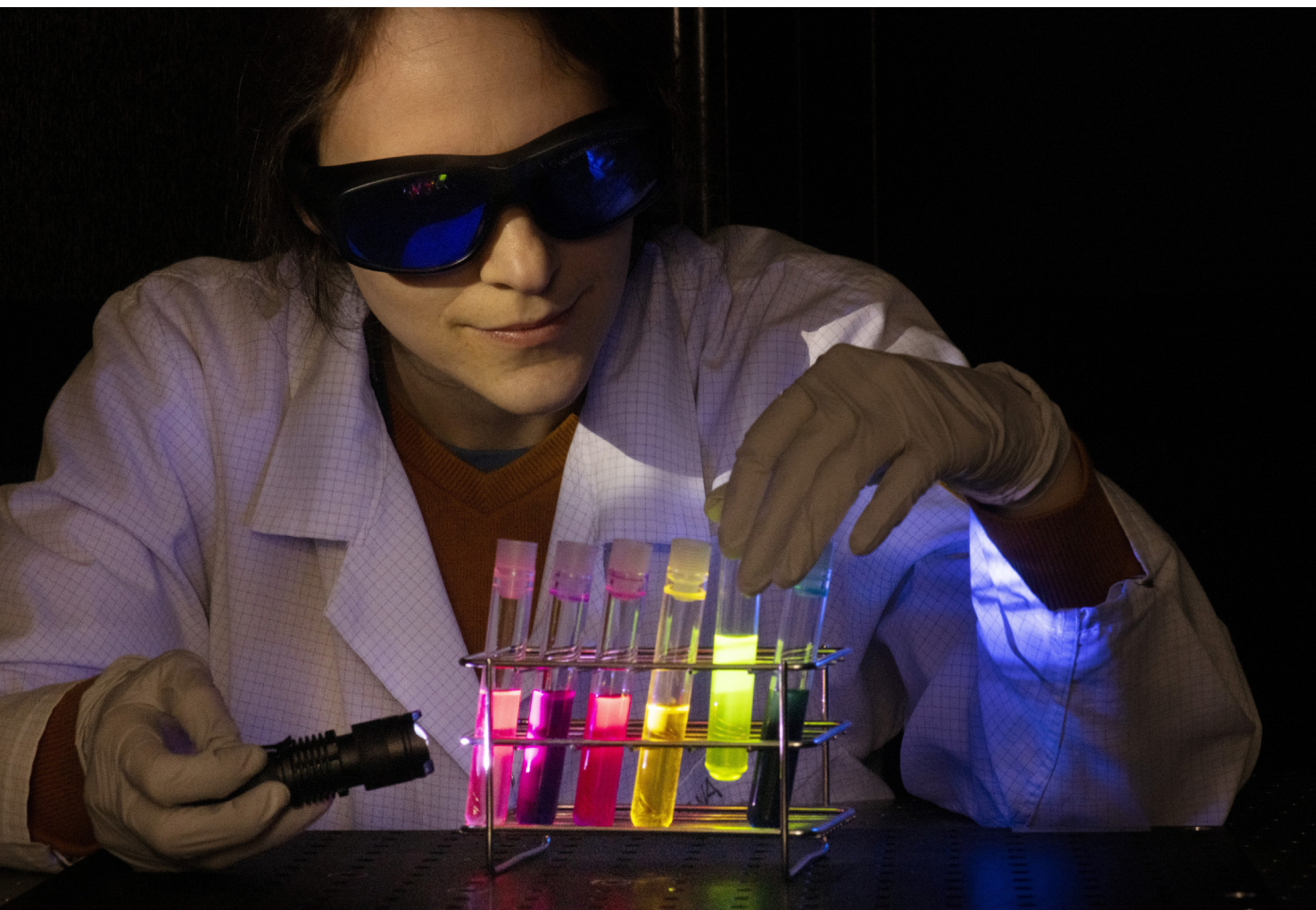
Koordinator / *Coordinator*:



dr. Ita Junkar

Institut Jožef Stefan
F4 - Tehnologija površin in optoelektronika
Jamova ulica 39
1000 Ljubljana, Slovenija
ita.junkar@ijs.si
+386(0)1 477 38 85





Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič

ČLANI SRIPTOP - PODJETJA / SRIPFOF MEMBERS - COMPANIES

18	Albatros-PRO d.o.o.	59	SAŠA INKUBATOR, d.o.o.
19	AVASTAR Automation d.o.o.	60	SCAN, d.o.o.
20	Blubit d.o.o.	61	SICK d.o.o.
21	BSH Hišni aparati I.D. d.o.o.	62	SMM proizvodni sistemi, d.o.o.
22	CADCAM LAB d.o.o.	63	Solvesall Labs d.o.o.
23	CAP d.o.o.	65	STELEM d.o.o.
24	Danfoss Trata, d.o.o., Ljubljana	66	Talum Tovarna aluminija d.d.
25	DATALAB Tehnologije d.d.	67	TELEM d.o.o.
26	Domel, d.o.o.	68	UNIOR d.d.
27	ELVEZ d.o.o.	69	Vacutech d.o.o.
28	ELVI d.o.o.	70	YASKAWA Slovenija d.o.o.
29	Fotona d.o.o.		
30	Gorenje Orodjarna, d.o.o.		
31	IB-CADDY d.o.o.		
32	IMAS d.o.o.		
34	INEA d.o.o.		
35	RBT Technologies		
36	INTRAKON d.o.o.		
37	ISKRA, d.o.o.		
38	Iskra AMS d.o.o.		
39	KANSAI HELIOS d.o.o.		
40	Kolektor Sisteh d.o.o.		
41	Lotrič Meroslovje d.o.o.		
42	LPKF d.o.o.		
43	MAROVIT d.o.o.		
45	MARSI GROUP d.o.o.		
46	Merel d.o.o.		
47	Metronik d.o.o.		
48	Optotek d.o.o.		
49	Plasmadis d.o.o.		
50	Podkrižnik d.o.o.		
51	Process Space d.o.o.		
52	PS, d.o.o.		
53	QLECTOR d.o.o.		
54	Result d.o.o.		
55	RETTRO d.o.o.		
56	REVOZ d.d.		
57	RLS d.o.o.		
58	Robotina d.o.o.		

Albatros-PRO d.o.o.



Albatros-PRO d.o.o.

IOC Zapolje I 22
1370 Logatec
Slovenija, EU

+386(0)1 320 52 10
info@albatros-pro.si
www.albatros-pro.si

Družinsko podjetje **Albatros-pro d.o.o.** z dvajsetletno tradicijo ponuja široko paleto rešitev avtomatizacije tehnoloških procesov v proizvodnji izdelkov za avtomobilsko industrijo, sanitarno tehniko in proizvodnjo izdelkov za široko potrošnjo. Svojim kupcem ponujamo celovite rešitve organizacije delovnih procesov, v naše naprave po želji kupca vgradimo nadzorni sistem za sistemsko spremljanje proizvodnih procesov, ki omogoča nadzor nad delovanjem postrojenja z oddaljenega mesta oziroma prek telefona.

Razvijamo tudi samostojne rešitve na področju pranja izdelkov po obdelavi, posluževanja brizgalnih strojev z vstavljanjem zahtevnih podsopov v brizgalno orodje in izdelavo naprav za pripravo personaliziranih kozmetičnih izdelkov.

Vizija podjetja Albatros – pro d.o.o. je postati in ostati vodilno neodvisno podjetje za razvoj novih rešitev na področju avtomatizacije in robotizacije tehnoloških – proizvodnih procesov z izraženo noto podjetja, ki skrbi za svoje zaposlene, za širšo lokalno skupnost in okolje.

PROIZVODI / STORITVE:

- namenski stroji in naprave za avtomatizacijo postopkov,
- robotske obedovalne, manipulative in montažne celice,
- kompleksna tehnološka postrojenja, ki vključujejo standardne in namensko narejene stroje, katere povezujejo tehnološko napredni transportni sistemi.

Albatros-pro d.o.o., a family-run business, with its 20 years of tradition, offers a broad range of automation solutions for technological processes in the manufacture of products for the automotive industry, sanitary industry, and production of general-consumption products.

Customers are offered integrated solutions for the organization of work processes, with an optional built-in control system for complete surveillance of the production process that allows control over the plants functioning from a remote location or over the telephone.

Furthermore, the company develops independent solutions in the field of washing products after machining, automatic handling of products directly from/into injection moulding machines with the insertion of demanding sub-assemblies in the injection tool and manufacturing devices for preparation of personalized cosmetic products.

The company's vision is to become and remain the leading independent company for the development of new solutions on automation and robotization of technological manufacturing processes, with emphasis on the company's care for its employees and the wider local community and environment.

PRODUCTS & SERVICES:

- special purpose machines and devices for process automation,
- robotic machining, manipulation, and assembly cells,
- complex technological plants that include standard and special purpose machines and devices, connected with technologically advanced transportation systems.

Avastar Automation d.o.o.



AVASTAR Automation d.o.o.

Ulica 15. maja 1a
6000 Koper
Slovenija, EU

Managing Director:
Aljoša Kovač
+ 386 (0)41 665 886
aljosa.kovac@avastar.si
www.avastar.si

Avastar Automation

25 let izkušenj.

Razvoj, projektiranje in izdelava avtomatskih robotiziranih strojev ter naprav, kjer so implementirane stroge zahteve kakovosti avtomobilske industrije (100% sledljivost, 100% ponovljivost, 100% kontrola kakovosti, 100% kontrola procesa).

Smo integrator proizvodnih procesov – tako strojnega, kot programskega dela.

Naši izdelki so povezljivi z drugimi stroji v okolju. Z njimi komunicirajo ter zbirajo procesne podatke za takojšnjo obdelavo in odločanje.

Naši izdelki so pripravljeni na zahteve Industrije 4.0 in pametnih tovarn prihodnosti.

Avastar Automation

25 years of experience.

Development, design and production of automated robotised machines for production processes where demanding automotive industry standards and specifications are applied (100% traceability, 100% repeatability, 100% quality control, 100% process control).

We are an automotive production process integrator – hardware and software-wise.

Our products are interconnected with other machines in the surrounding environment. They communicate with them and collect process data for immediate usage and decisionmaking.

Our products are ready for Industry 4.0 requirements and to be integrated into Smart plants of the future.

Blubit d.o.o.



BLUBIT d.o.o.

Jalnova ulica 70
1000 Ljubljana
Slovenija, EU

Sales:
Jan Jakus
+ 386 (0)64 296 997
jan.jakus@blubit.si

Razvijamo unikatne rešitve na področju strojegradnje, avtomatizacije, robotizacije in specialne programske opreme.

Zavedamo se, da je uspešnost podjetja rezultat odgovornega in predanega dela zaposlenih, zato gojimo kulturo, ki temelji na naših ključnih vrednotah: odgovornost, znanje, sodelovanje, kakovost in fleksibilnost.

Vizija

Ostati vodilni v odgovornem ustvarjanju inovativnih tehnoloških rešitev.

Poslanstvo

Ustvarjati inovativne rešitve industrijske avtomatizacije za učinkovito in varno prihodnost

PROIZVODI / STORITVE

Razvijamo robotske celice z industrijskimi in sodelujočimi roboti, laserske sisteme za označevanje in odstranjevanje materialov, sestavljalne linije in testne naprave ter specialno programsko opremo za krmiljenje, nadzor, upravljanje in analizo zahtevnih industrijskih procesov.

We develop unique solutions in the field of mechanical engineering, industrial automation, robotics and special software.

We are aware that the success of the company is the result of responsible and dedicated work of our employees, so we cultivate a culture based on our core values: responsibility, knowledge, cooperation, quality and flexibility.

Our vision

To remain a leader in the responsible development of innovative technological solutions.

Our Mission

To create innovative industrial automation solutions for an efficient and safe future.

PRODUCTS & SERVICES

We develop robot cells with industrial and collaborative robots, laser systems for marking and removing materials, assembly lines and testing devices, as well as special software for control, management and analysis of demanding industrial processes.

BSH Hišni aparati I.D. d.o.o.

B/S/H/

BSH Hišni aparati d.o.o. Nazarje



BSH Hišni aparati d.o.o. Nazarje

Savinjska cesta 30
3331 Nazarje
Slovenija, EU

T: +386(0)3 837 05 99
M: +386(0)40 295 485
F: +386(0)3 839 82 57
blaz.florjanic@bshg.com
www.bsh-group.com
www.bsh-group.si

BSH Hausgeräte GmbH je eno od vodilnih podjetij na svetu v tej industriji in največji proizvajalec hišnih aparatov v Evropi. BSH želi ugoditi posamičnim potrebam potrošnikov po vsem svetu in si prizadeva, da bi s svojimi vrhunskimi blagovnimi znamkami, inovativnimi proizvodi in izjemnimi rešitvami nenehno izboljševal kakovost življenja ljudi.

Poleg globalnih blagovnih znamk Bosch in Siemens ter Gaggenau in Neff, globalni portfelj blagovnih znamk vključuje tudi lokalne blagovne znamke Thermador, Balay, Profilo, Constructa, Pitsos, Coldex, Ufesa in Zelmer. Medtem ko so globalne blagovne znamke usklajene z ustreznimi ciljnim skupinami praktično povsod po svetu, vsaka od lokalnih blagovnih znamk BSH v svoji lastni ciljni skupini ohranja močan lokalni odnos s potrošniki.

BSH ima licenco podjetja Robert Bosch GmbH za blagovno znamko Bosch in licenco podjetja Siemens AG za blagovno znamko Siemens.

Podjetje je bilo ustanovljeno leta 1967 kot skupno podjetje družb Robert Bosch GmbH (Stuttgart) in Siemens AG (München) ter je od januarja 2015 100-odstotno v lasti Skupine Bosch. Skozi svojo 50-letno zgodovino je BSH iz nemškega izvoznika zrasel v drugega največjega proizvajalca hišnih aparatov na svetu. Z več kot 61,000 zaposlenimi po vsem svetu je BSH svoj prihodek v letu 2017 povišal na okoli 13,8 milijard evrov. BSH proizvaja celotno paleto sodobnih hišnih aparatov v okoli 43-ih tovarnah po vsem svetu. Portfelj proizvodov vključuje štedilnike, pečice, nape, pomivalne stroje, pralne in sušilne stroje, hladilnike in zamrzovalnike ter male hišne aparate, kot so sesalniki, kavni aparati in kuhinjski aparati. S tehnologijo Home Connect BSH ponuja platformo več blagovnih znamk kot osnovo za hitro rastoči ekosistem povezanih hišnih aparatov in na uporabnike osredotočenih storitev, ki v kuhinji poskrbijo za posebno futuristično izkušnjo.

BSH Hausgeräte GmbH is one of the world's leading companies in the sector and the largest home appliance manufacturer in Europe. To be the first choice for consumers worldwide drives the company and its employees. BSH aspires to improve the quality of life for people with its exceptional brands, high-class products and superior solutions.

Alongside the global brands Bosch and Siemens, as well as Gaggenau and Neff, the brand portfolio includes the local brands Thermador, Balay, Profilo, Constructa, Pitsos, Coldex, Ufesa and Zelmer. While the global brands are aligned to their respective target groups practically everywhere in the world, the local BSH brands each maintain a strong local relationship to the consumers.

BSH is a trademark licensee of Robert Bosch GmbH for the Bosch brand and Siemens AG for the Siemens brand.

Founded in 1967 as a joint venture of Robert Bosch GmbH (Stuttgart) and Siemens AG (Munich), BSH has been 100 percent owned by Bosch Group since January 2015. In its over 50 years of history, BSH has grown from a German exporter into one of the world's leading home appliance manufacturers. With more than 61,800 employees worldwide, BSH increased its revenue in 2017 to around 13.8 billion euro. BSH produces the entire range of modern home appliances at 43 factories worldwide. The product portfolio ranges from cookers, ovens and extractor hoods, dishwashers, washers and dryers, fridges and freezers to small appliances such as vacuum cleaners, coffee machines or food processors.

With Home Connect, BSH offers a cross-brand platform as the basis for a rapidly growing ecosystem of connected home appliances and consumer-centric services for a special future experience in the kitchen.

CADCAM LAB d.o.o.



CADCAM LAB d.o.o.

Gerbičeva ulica 64
1000 Ljubljana
Slovenija, EU

David Celestina, direktor

+ 386 (0)1 426 73 33

david.celestina@cadcam-group.eu

www.cadcam-group.eu/si

Vaš zanesljiv partner na poti digitalne preobrazbe.

Podjetje **CADCAM Lab** je član Skupine CADCAM, ki je že 30 let prisotna na trgu razvoja in proizvodnje izdelkov, predvsem v avtomobilski industriji, ladjedelnstvu, energetiki in proizvodnji industrijske opreme. Z nenehnim delom in učenjem smo zrasli v vodilnega ponudnika digitalnih rešitev ter v prvo izbiro industrije v digitalni preobrazbi.

PROIZVODI / STORITVE:

Uvajamo optimalne rešitve ter gradimo znanje in zmogljivosti, potrebne za digitalni napredek in konkurenčnost pametnih tovarn na svetovni ravni. Znanje in izkušnje uporabljamo za poenostavitev in avtomatizacijo procesov v 3D-oblikovanju in proizvodnji ter za uvajanje digitalne platforme. S tem pomagamo partnerjem na poti digitalne preobrazbe in jim omogočamo preprostejše in učinkovitejše delo. Strokovna ekipa konfigurira in uvede optimalno rešitev, prilagojeno resničnim potrebam in poslovnim ciljem.

Izkušeni inženirji pomagajo pri 3D-oblikovanju, simulacijah, pripravi tehnologije ali dokumentacije, avtomatizirajo rutinske procese in izboljšajo metodologijo dela.

Ekipa certificiranih predavateljev pomaga hitreje in učinkoviteje uporabljati nove tehnologije in programska orodja, kot so CATIA, SIMULIA, ENOVIA, DELMIA in platforma 3DEXPERIENCE. CADCAM Group je edini pooblaščen Dassault Systèmes certifikacijski partner (CEP) v jadranski regiji.

Še posebej smo ponosni na lastno programsko rešitev MECODES, ki omogoča izmenjavo podatkov med programsko rešitvijo CATIA ali 3DEXPERIENCE in Altium Designer, Mentor PADS/Xpedition ali Cadence Allegro.

CADCAM Lab is a member of the CADCAM Group, which has been present for 30 years in the field of product development and manufacturing, primarily in the automotive industry, shipbuilding, energy, and in the industrial plant sector.

Through continuous work and learning, we have become the leading digital solution provider and industry's no. 1 choice for digital transformation.

PRODUCTS & SERVICES:

We introduce optimal solutions and build the knowledge and capacities necessary for a digital breakthrough and global competitiveness of smart factories. We use our experience to simplify and automate processes in 3D design and manufacturing, to implement a digital platform.

We lead our partners through digital transformation and help them to work in a simpler and more efficient way.

Our expert team configure and implement the optimal solution tailored to actual needs and business goals.

Experienced engineers help in 3D design, simulations, technology or document preparation, automate the routine processes and improve methodology.

A team of certified lecturers helps to apply new technologies more quickly and efficiently with training courses for CATIA, SIMULIA, ENOVIA, DELMIA and 3DEXPERIENCE. The CADCAM Group is the only authorized Dassault Systèmes' certification center (CEP) in the Adriatic region. We are extremely proud of our own solution MECODES, which facilitates a simple data exchange between the Dassault Systèmes CATIA/3DEXPERIENCE and Altium Designer, Mentor PADS/Xpedition or Cadence Allegro.

CAP d.o.o.



www.polymer.si
Barletova cesta 4 L
1215 Medvode
Established in 2010

CAP je razvojno usmerjeno podjetje, ki uspešno združuje desetletja izkušenj predelave polimerov z najnovejšimi odkritji, orodji CAE in odličnostjo izdelave. Podjetje je zelo inovativno in si prizadeva proizvajati nišne izdelke z visoko dodano vrednostjo.

Glavna usmeritev podjetja so izdelki iz lahkih polimerov.

Ker smo že eden od glavnih centrov za lahke kompozitne materiale v EU za navtični sektor, je naš glavni cilj predstaviti znanje in izkušnje o lahkih materialih tudi v sektorju avtomobov, s čimer postanemo glavni strokovnjaki za lahke polimere v EU za sektorje nizkih in srednjih serij (RV, avtobusi, kmetijstvo, vlaki) za strukturni (zunanji deli) in nestrukturni deli (obloge itd.).

PROIZVODI / STORITVE

SERVISNI PROGRAM

Razvoj in proizvodnja izdelkov iz lahkih polimerov:

- Izdelki za stiskanje iz termoplastičnih kompozitov (kontinuirani ali ojačeni z netkanim materialom)
- Termoset kompozitni izdelki (vse glavne proizvodne tehnologije v hiši)
- Lastni certifikacijski laboratorij
- Celotna hišna razvojna procesna veriga, od načrtovanja do proizvodnje
- Hišna reciklirana procesna veriga za termoplastične kompozite

SERVISNE TEHNOLOGIJE

- Stiskanje termoplastičnih kompozitov (tkanih in netkanih)
- Tehnologije termoset kompozitov (ročno polaganje, RTM, VARTM, Light RTM, prepregi)
- Robotsko lasersko rezanje kompozitov
- Montaža izdelka in QC

CAP is a development-oriented enterprise that successfully combines decades of polymer processing experience with the latest discoveries, CAE tools and craftsmanship excellence in its most innovative form. The company is based on three decades of experience in the most demanding polymer projects of high-volume thermoplastic processing. The company is highly innovative and strives to produce niche products with high added value.

Company main focus are lightweight polymer products.

Being already one of main lightweight composites centers in EU for marine sector our main goal is to introduce lightweight knowledge and experiences also in RV sector thus becoming EU main polymer lightweight experts for low & mid series sectors (RV, bus, agro, train) for structural (exterior parts) and nonstructural parts (liners etc).

PRODUCTS & SERVICES

SERVICE PROGRAM

Development and production of lightweight polymer products:

- *Thermoplastic composites presses products (continuous or nonwoven reinforced)*
- *Thermoset composites products (all main production technologies in house)*
- *In house certification laboratory*
- *In house complete development process chain, from design to production*
- *In house recycled process chain for thermoplastic composites*

SERVICE TECHNOLOGIES

- *Thermoplastic composites pressing (woven and nonwoven)*
- *Thermoset composites technologies (hand lay up, RTM, VARTM, Light RTM, Prepregs)*
- *Robot laser cutting for composites*
- *Product assembly and QC*

Danfoss Trata, d.o.o., Ljubljana

ENGINEERING
TOMORROW



Danfoss Trata, d.o.o., Ljubljana
Ulica Jožeta Jame 16
1000 Ljubljana
Slovenija, EU

+386(0)1 582 02 00
danfos-trata@danfoss.com
www.trata.danfoss.com

Danfoss Trata je vodilni dobavitelj komponent za aplikacije daljinskega ogrevanja in hlajenja ter regulacije ogrevanja in klimatizacije stavb. Smo strokovnjaki za rešitve, ki pripomorejo k optimalni rabi energije in njenemu prenosu pri ogrevanju ter prezračevanju.

Imamo edinstveno kombinacijo znanja na področju toplotnih podpostaj, regulatorjev in prenosnikov toplote, širok prodajni program in izjemne izkušnje na področju uporabe naših izdelkov v različnih aplikacijah. Vse to pa nam omogoča razvijati izdelke, ki postavljajo prihodnje standarde in so usklajeni s proizvodnimi procesi.

Za zaposlene v Danfoss Trati je nenehna želja po izboljševanju izdelkov in izvajanju raziskav za razvoj novih tehnologij postala način življenja. Strast do inovacij je del Danfossovega podjetniškega duha. Velike naložbe, sodelovanje s kupci in dobavitelji ter predani zaposleni postavljajo nove standarde za razvoj izdelkov v Danfossu.

Naši največji izvozni trgi so Rusija, Nemčija, Danska, Poljska ter Anglija. Prisotnost želimo povečati tudi v Aziji (Koreja, Malezija in Singapur), v Evropi pa v Španiji, Franciji ter Italiji.

***Danfoss Trata** is the leading supplier of components for applications in district heating and cooling, as well as heating and air-conditioning control in buildings. We are experts in solutions that contribute to optimal energy use and its transfer in heating and ventilation.*

We have a unique combination of know-how in the field of heating substations, controls and heat exchangers, a wide sales range and exceptional experience with regard to the use of our products in various applications. All the above facts enable the development of products that set the standard for the future, and are coordinated with production processes.

A wish for the improvement of products and conduct of research for the development of new technologies has become a constant for the employees in Danfoss Trata, their way of life. Passion for innovation is a part of Danfoss' entrepreneurial spirit. High investments, cooperation with customers and suppliers along with dedicated employees set new standards for the development of products in Danfoss.

Our largest export markets are Russia, Germany, Denmark, Poland and England. We also want to increase our presence in Asia (Korea, Malaysia and Singapore) and in Europe, Spain, France and Italy.

DATALAB Tehnologije d.d.



PANTHEON®
Poslovni informacijski sistem



DATALAB D.D.

Hajdrihova ulica 28C,
1000 Ljubljana
Slovenija, EU

T: 01 252 89 00

E-pošta: info@datalab.si

Spletna stran: <https://www.datalab.si/>

Že več kot 26 let stremimo k temu, da podjetjem olajšamo in izboljšamo poslovanje.

Datalab je slovensko podjetje, ki se ukvarja z razvojem poslovne programske opreme za vodenje podjetja. Ponuja celovite poslovno-informacijske rešitve za majhna in srednje velika podjetja. Smo vodilni proizvajalec ERP v Sloveniji in JV Evropi. Naš program **PANTHEON** uporablja več kot 83.000 uporabnikov v več kot 36.000 podjetjih iz 12 držav.

PROIZVODI / STORITVE

PANTHEON – Razvejan in prilagodljiv poslovni program.

V podjetju Datalab smo se zavezali razvoju učinkovitega poslovnega informacijskega sistema PANTHEON, ki omogoča celostno upravljanje in pregled nad vsemi dejavnostmi in viri v podjetju. Hitre in točne informacije so namreč bistvene za preživetje podjetij, saj lahko svojo tekmovalno sposobnost ohranjajo in razvijajo le s sodobno informacijsko podporo.

PANTHEON je danes najboljši poslovni informacijski sistem v svojem segmentu v regiji, kar pa ni naš končni cilj. Naš končni cilj je razviti najboljši ERP na svetu.

Naše poslanstvo je s stalnimi inovacijami zagotoviti kakovostno poslovno informatiko vsem, tudi najmanjšim podjetjem. Želimo jim pomagati pri rasti in uresničevanju strategij. Želimo, da prek optimizacije poslovnih procesov in avtomatizacije delovnih postopkov povečajo dobiček.

For more than 26 years, we have been striving to simplify and improve business processes.

Datalab is a Slovenian company that develops business management software. It offers comprehensive business information solutions for small and medium enterprises. We are a leading ERP developer in Slovenia and South East Europe. **PANTHEON**, our software, is used by more than 83,000 users in more than 36,000 companies in 12 countries.

PRODUCTS & SERVICES

PANTHEON – A flexible ERP software with diverse modules.

At Datalab, we are committed to developing an efficient ERP system, PANTHEON, that provides an integrated management and overview of all activities and resources in a company. Fast and accurate information is essential for a company's survival, as a company can only maintain and develop its competitive edge with contemporary IT support.

Today, PANTHEON is the best ERP system in its segment in the region, but this is not our ultimate goal. Our ultimate goal is to develop the best ERP in the world.

Our mission is to use constant innovation to ensure that quality business IT is available to everyone, even the smallest companies. We want to help them grow and implement their strategies. We want them to increase their profits through business process optimization and workflow automation.

Domel, d.o.o.

DOMEL



Domel, Elektromotorji in gospodinjiski aparati, d.o.o.

Otoki 21
4228 Železniki
Slovenija, EU

T: +386(0)4 511 71 00
F: +386(0)4 511 71 06
info@domel.com
www.domel.com

Domel je globalni razvojni partner najsodobnejših energetsko učinkovitih električnih pogonov, ki temeljijo na naših inovativnih tehnologijah. Eden od ključnih vidikov, ki ločuje Domel od konkurence, je naša neomajna zavezanost kakovosti. S strokovnim znanjem in kompetencami oblikujemo trajnostno prihodnost. Podjetje daje velik poudarek razvoju in proizvodnji izdelkov, ki se odlikujejo po zmogljivosti, zanesljivosti in vzdržljivosti. Z inovativnimi in tržno privlačnimi izdelki v Domelu omogočamo rast in razvoj podjetja. Inovacije, ki jih dosežemo s stalnim motiviranjem zaposlenih, ustvarjajo nove priložnosti na globalnem trgu, s čimer zagotavljamo kakovostna delovna mesta v širši skupnosti. Podjetje je bilo ustanovljeno leta 1946 in danes poteka proizvodnja na osmih lokacijah, od tega šest v Sloveniji, ena v Srbiji in ena na Kitajskem. Visoka tehnološka opremljenost, avtomatizacija, digitalizacija in robotizacija se kažejo v naših poslovnih procesih ter so temelj za gradnjo konkurenčnosti in odličnosti.

Delujemo na področju profesionalnih in gospodinjiskih aparatov, e-mobilnosti, industrijskih aplikacij, klimatskih naprav, električnih ročnih orodij, medicine, zdravstva in vodikovih tehnologij.

PROIZVODI / STORITVE

- elektronsko komutirani (EC / BLDC) motorji,
- elektronsko komutirana puhala/črpalke,
- vakuumski elektromotorji,
- univerzalni kolektorski motorji,
- brezkrtačni DC motorji,
- krmilja,
- komponente in orodja,
- laboratorijska oprema.

Domel is a global development partner for state-of-the-art energy-efficient electric drives based on our innovative technologies. What distinguishes Domel from its competitors is our steadfast commitment to quality. With our expertise and capabilities, we are dedicated to shaping a sustainable future. The company prioritizes the development and production of products that stand out for their performance, reliability, and durability. Our innovative and market-driven products foster growth and advancement within Domel, while the continuous motivation of our employees creates new opportunities in the global market, ensuring quality employment for the wider community. Founded in 1946, the company currently has production facilities in eight locations: six in Slovenia, one in Serbia, and one in China.

High technological equipment, automation, digitalization, and robotization are reflected in our business processes and form the foundation for building competitiveness and excellence.

We operate across a diverse range of sectors, including professional and household appliances, e-mobility, industrial applications, climate control systems, electric power tools, medicine, healthcare, and hydrogen technologies.

PRODUCTS & SERVICES:

- Electronically commutated (EC / BLDC) motors,
- Electronically commutated blowers/pumps,
- Vacuum electric motors,
- Universal collector motors,
- Brushless DC motors,
- Controllers,
- Components and tools,
- Laboratory equipment.

ELVEZ d.o.o.



Elvez d.o.o.

Ulica Antona Tomšiča 35
1294 Višnja Gora
Slovenija, EU
+386(0)1 787 20 20
info@elvez.si
www.elvez.si

Podjetje **ELVEZ d.o.o.** (MSP), je proizvajalec specializiranih izdelkov za avtomobilsko industrijo, električno in strojno industrijo ter proizvajalce bele tehnike.

Odličnost njihovih izdelkov in storitev, nenehno izboljševanje in razvoj znanja ter dobri odnosi z vsemi deležniki so izhodišča dobre organizacije in konkurenčnosti. V svoji poslovni zgodovini so rasli, razvijali, ohranjali konkurenčnost, uresničevali svoje strateške cilje, vedno posvečeni poslanstvu in viziji. Njihovi zaposleni se nenehno ukvarjajo z razvojem in implementacijo inovativnih in fleksibilnih rešitev, ki izpolnjujejo izjemno kakovost in najvišje zadovoljstvo kupcev, ki so temelj za dolgoročne odnose.

Osnovna dejavnost podjetja ELVEZ je proizvodnja. Kombinacija treh proizvodnih programov jim omogoča popolno storitev za svoje stranke. Specializirani so za proizvodnjo in izdelavo kabelskih snopov, kabelskih kompletov / dodatkov in ožičenja, različnih napajalnih kablov, kabelskih kompletov s senzorsko tehniko, brizganje tehničnih plastičnih delov, vakuumске metalizacije izdelkov ter montažo (montaža) različnih kompleksnih komponent.

*Company **ELVEZ d.o.o.** (SME), is the manufacturer of specialized products for automotive industry, electrical and mechanical engineering, and white goods manufacturers.*

The excellence of their products and services, continual improvement and development of know-how, as well as good relations with all stakeholders are the baselines. During their corporate history they have grown, developed, maintained competitiveness, implemented their strategic goals, always dedicated to their mission and vision statement. Their employees are constantly engaged in development and implementation of innovative and flexible solutions to meet an outstanding quality and highest customer satisfaction which are the foundations for a long term relationship.

ELVEZ's core activity is manufacturing. A combination of three manufacturing programs allows them to provide a full service to their customers. They are specialized for the production and manufacturing of cable harnesses, cable sets/accessories and wiring, various power cords, cable sets with sensor-aided technique, injection molding of technical plastic parts, aluminum metallization of technical plastic parts with state-of-the-art physical vapor deposition (PVD) with vertical coating machine, assembly (fitting) of various complexes and links for industry.

PRODUCTS:

Specialized products for the automobile, electronics and machinery industries: pump cable sets, gears, telescoping pipes and housing for car lights.

ELVI Proizvodnja Trgovina Inženiring d.o.o. Ljubljana



ELVI d.o.o.

Mucherjeva ulica 3
SI-1000 Ljubljana
Slovenija

+386 (40) 272 118

tomaz@simplysens.com

www.elvi.digital

www.digitalflowz.com

Z ustvarjanjem digitalnih tokov na novo definiramo tovarno.

Zasebno podjetje **ELVI d.o.o.** je bilo ustanovljeno 1990, ko smo se ukvarjali z avtomatizacijo bančnih sistemov in procesov. Z rastjo in nadaljnjo diverzifikacijo smo uvedli v ponudbo uvedli sisteme za avtomatizacijo specializirane laboratorijske opreme, ki skrbijo za zasebne in javne raziskovalne in razvojne laboratorije.

Že leta 2011 smo lansirali blagovno znamko Simplysens, pionirsko na področju sistemov IIoT (Industrial Internet of Things) za proizvodnjo in pametne tovarne.

V drugi polovici leta 2023 smo ohranili svojo osredotočenost na IIoT in razširili svoje strokovno znanje na arhitekturo Unified Namespace (UNS/MQTT), s čimer smo poudarili pomen podatkov kot ključnega poslovnega sredstva v pametnih tovarnah in digitalnih proizvodnjah.

Poleg tega smo začeli ponujati obsežen nabor svetovalnih storitev, prilagojenih proizvodnim in industrijskim podjetjem, ki so že, ali pa se šele podajajo na pot digitalne transformacije.

Podjetje ima razviti dve lastni tržni znamki na področju strokovnega svetovanja:

DigitalFlowz

V svetu, kjer več kot 70% digitalnih preobrazb spodleti, kar stane ogromno časa in denarja, DigitalFlowz zagotavlja vam, direktorjem in vodjem v proizvodnih podjetjih, prilagojene in celovite storitve za uspešno izvedbo digitalne preobrazbe v vašem podjetju.

Simplysens

Podjetjem in raziskovalnim organizacijam svetujemo pri sestavljanju konzorcijev in oblikovanju tehnološko-inovativnih ter raziskovalno-razvojnih projektov in pomagamo pri njihovi kakovostni izvedbi, poiščemo pa tudi primerne priložnosti za javno ali zasebno sofinanciranje.

*The private company **ELVI d.o.o.** was founded in 1990, when we were dealing with the automation of banking systems and processes. With growth and further diversification, we have introduced systems for the automation of specialized laboratory equipment that cater to private and public R&D laboratories.*

Already in 2011, we launched the Simplysens brand, a pioneer in the field of IIoT (Industrial Internet of Things) systems for production and smart factories. In the second half of 2023, we maintained our focus on IIoT and expanded our expertise to Unified Namespace (UNS/MQTT) architecture, highlighting the importance of data as a key business asset in smart factories and digital manufacturing.

In addition, we started offering a comprehensive range of consulting services tailored to manufacturing and industrial companies that are already, or are just starting, on the path of digital transformation.

The company has developed two own brands in the field of professional consulting:

DigitalFlowz

In a world where more than 70% of digital transformations fail, costing a lot of time and money, DigitalFlowz provides you, the directors and leaders in manufacturing companies, with customized and comprehensive services to successfully implement digital transformation.

Simplysens

We advise companies and research organizations in the formation of consortia and the design of technologically innovative and research and development projects, and we assist in their quality implementation. In addition we also look for suitable opportunities for public or private co-financing.

Fotona d.o.o.



Fotona
choose perfection

FOTONA, proizvodnja optoelektronskih naprav d.o.o.

Stegne 7
1000 Ljubljana
Slovenija, EU

T: +386(0)1 500 91 00
F: +386(0)1 500 92 00
info@fotona.com
www.fotona.com

Od leta 1964 je **Fotona** usmerjena v razvoj laserskih sistemov, kar jo uvršča med pionirje laserske tehnologije na svetu. Naši laserski sistemi so rezultat lastnega znanja in več kot 45 let izkušenj na področju medicine, industrije, optičnih komunikacij in obrambe. Fotona je v svetu priznana kot vodilna na področju inovacij, razvoja in proizvodnje laserskih sistemov.

Odločanje za popolnost je naša osnovna filozofija delovanja. Z znatnim investiranjem v raziskave in razvoj skušamo kvalitetno in hitro izpolniti potrebe trga po inovativnih in vzdržljivih rešitvah. Z upoštevanjem vseh veljavnih mednarodnih standardov na področju zagotavljanja kakovosti ter strogim testiranjem vseh komponent pa najvišjo kakovost in dolgotrajno zanesljivost naših laserskih sistemov tudi dosegamo.

Veliko pozornost posvečamo tudi izbiri kvalitetnih partnerjev po vsem svetu. Kupcem naših proizvodov namreč želimo zagotoviti najboljšo možno podporo pri učinkovitosti in varni uporabi naših izdelkov.

Z izbiro Fotoninih izdelkov izberete popolnost pri vašem delu. Fotona vam ponuja natančnost, učinkovitost in uspeh, ki jih ne morete doseči z drugimi sredstvi.

Ko izberete Fotonin izdelek, izberete **najbolj zmogljiv in zanesljiv laserski sistem na svetu.**

Fotona's decades-long experience in the laser industry began 50 years ago in 1964, producing frontline laser devices for defense, optical communications, industrial, dental and medical applications throughout this time.

Fotona today is a world-leading medical laser company recognized for its innovative, award-winning laser systems for applications in aesthetics & dermatology, dentistry, surgery and gynecology. Based in the US and EU, with corporate headquarters in Dallas, Texas and Ljubljana, Slovenia, Fotona's business philosophy is to continuously choose perfection to meet the needs of a highly demanding marketplace.

The company has one of the most highly educated workforces in the industry, with an exceptionally high number of PhDs specializing in laser and medical technology. Strong R&D capabilities have always been a key competitive advantage of the company, resulting in many patented solutions, including the OPTOflex® articulated arm, QSP (Quantum Square Pulse) and VSP (Variable Square Pulse) technologies, SMOOTH mode, Vacuum Cell technology, and many more.

In addition to its direct presence in the US, China and EU, Fotona's global distribution network spans across more than 60 countries, ensuring comprehensive support and service for Fotona laser users, including clinical training, workshops and practical hands-on demonstrations.

The company manufactures and tests all of its laser systems in-house, ensuring that each system is of the highest quality, reliability, ease-of-use and durability, in compliance with all applicable international standards.

The highest performance, best made laser systems in the world.

Gorenje Orodjarna, d.o.o.



Sestava orodja – Tool Assembly



Rezkanje odlitka – Milling of the casting

Hisense EUROPE

Gorenje Orodjarna, d.o.o.

Gorenje Orodjarna, d.o.o.

Partizanska cesta 12
3320 Velenje
Slovenija

+386 (0)3 899 2364

info@gorenje-ordjarna.si
prodaja@gorenje-ordjarna.si

Gorenje Orodjarna, d.o.o., v lasti mednarodne skupine Hisense Europe, je vodilno orodjarsko podjetje z več kot 70 letno tradicijo in izkušnjami ter zanesljiv razvojni partner avtomobilske industrije z njihovimi dobavitelji ter industrije bele tehnike. Podjetje zagotavlja kupcem vse proizvodne procese – od konstrukcije in tehnologije, proizvodnje, sestave orodja, testiranja, do končne optimizacije novih orodij pri kupcih. Podjetje deluje v skladu s standardom sistema kakovosti ISO 9001, sistema ravnanja z okoljem ISO 14001, sistema varnega in zdravega dela ISO 45001 in uvaja sistem učinkovitega upravljanja z energijo v skladu s standardom ISO 50001.

PROIZVODI / STORITVE:

Glavni produkti:

1. PROGRESIVNA IN TRANSFERNA ORODJA:
 - posamezna orodja za ročno prelaganje,
 - Transferna orodja in
 - Progresivna orodja.
2. BRIZGALNA ORODJA ZA TERMOPLASTIČNE MATERIALE
3. DRUGA ORODJA:
 - Kontrolne priprave,
 - Orodja za stiropor,
 - Orodja za termoformiranje.

Gorenje Orodjarna, owned by international group Hisense Europe, is a leading company with more than 70 years of tradition, experiences and reliable development partner for the Automotive Industry with its key suppliers and the Household Appliance Industry. Company covers all production processes – from design and technology, machining production, tool assembly, testing and optimization of tool at the customer in the final stage. The company operates in accordance with the Quality Management System ISO 9001, Environmental Management System ISO 14001 and Occupational Health and Safety Management System ISO 45001 and is deploying an Energy Management System according to the ISO 50001 standard.

PRODUCTS&SERVICES

Product range:

1. PROGRESSIVE AND TRANSFER TOOLS AND DIES:
 - individual tools for manual transfer
 - transfer tools and
 - progressive tools
2. INJECTION MOULDS FOR THERMOPLASTIC MATERIALS
3. OTHER TOOLS:
 - Control devices,
 - Syrofoam packaging tools,
 - Thermoforming tools.

IB-CADDY d.o.o.



IB-CADDY informacijske tehnologije d.o.o.

Dunajska 106
1000 Ljubljana
Slovenija, EU

T: +386(0)1 566 12 55

F: +386(0)1 568 22 55

info@ib-caddy.si

www.ib-caddy.si

Največje uporabno varilne klešče na svetu
Podjetje Kočevar d.o.o. se z varilno tehniko ukvarja že od ustanovitve v letu 1969. Dolga leta izkušenj so jim omogočila, da so za svoje kupce razvili največje uporabno varilne klešče na svetu. Te klešče so namenjene spajanju komponent potniških vagonov. Uporovne klešče so bile izrisane v programu SOLIDWORKS.

IB-CADDY d.o.o.

VAŠ VIR ZA KONSTRUKCIJSKE REŠITVE.

Od konstruiranja do proizvodnje, IB-CADDY sestavlja ekipa z izkušnjami, ki vam priskrbi rešitev za vaše potrebe. Izkoriščamo znanje konstrukcijskih procesov in tehnik in vam izboljšamo način uporabe tehnologije, ki jo imate trenutno na voljo ali pa vam priskrbimo novo, če ustreza vašim ciljem.

REŠITVE:

- Rešitve na področju inženirske grafike (3D MCAD/CAM/CAE/PDM)
- Izobraževanje in svetovanje
- Razvoj celovitih programskih rešitev na področju tehnične, poslovne in izobraževalne informatike (.Net, C/C++, Delphi, VB, Java, OpenGL, JavaScript, ASM, ASP, specialna programska orodja)
- Elektrotehnika & elektronika
- Rešitve za kompleksne interdisciplinarne rešitve na različnih elektro-inženirskih področjih v segmentu programskih orodij (E-CAD) za potrebe računalniškega podprtega načrtovanja v elektrotehniki
- 3D Tiskanje
- Obratni inženiring
- 3D vizualizacija

IB-CADDY d.o.o.

YOUR SOURCE FOR ENGINEERING DESIGN SOLUTIONS.

From engineering design to manufacturing production, IB-CADDY has the team and the expertise to deliver the solutions you need. Leveraging our knowledge of design processes and techniques, we improve the way you use the technology you have and deliver new technology as it serves the design objectives.

SOLUTIONS:

- *Solutions in the field of engineering graphics (3D MCAD/CAM/CAE/PDM)*
- *Education and Consulting*
- *Development of comprehensive programming solutions in the field/area/sphere of technical, business and educational informatics (.Net, C / C ++, Delphi, VB, Java, OpenGL, JavaScript, ASM, ASP, special software tools)*
- *Electrical engineering & Electronics*
- *Solutions for complex interdisciplinary solutions in diverse electrical engineering fields in the segment of programming tools (E-CAD) for the necessities/needs of the computer backup planning in the electrical engineering*
- *3D print*
- *Reverse engineering*
- *3D visualization*

IMAS d.o.o.



**IMAS d. o. o., projektiranje avtomatizacija,
orodjarstvo ter izdelovanje kovinskih in
nekovinskih predmetov**
Cesta na Polane 50
6210 Sežana, Slovenija
+386 (0)5 7311 557
ales.kaluza@imas.si

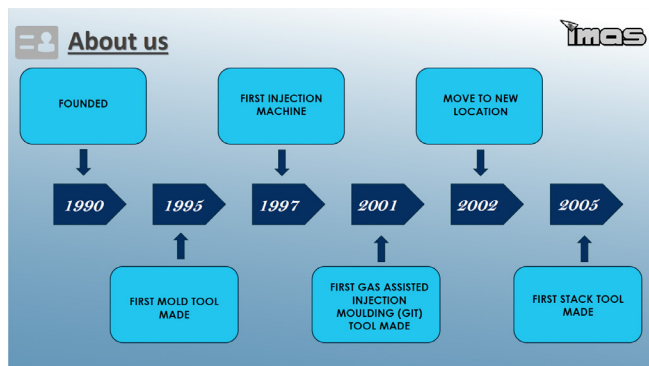
Slika podjetja iz zraka

Podjetje je bilo ustanovljeno leta 1990 in sodi med srednje velika podjetja. Iz obrtniške dejavnosti, ki se je ukvarjala s projektiranjem, avtomatizacijo in orodjarstvom, se je razvilo uspešno inovativno podjetje, ki danes zaposluje več kot 80 ljudi in posluje tako na domačem kot tudi mednarodnem trgu. Podjetje je prepoznano predvsem kot dobavitelj visokokakovostnih in tehnološko zahtevnih orodij za brizganje termoplastov na področju avtomobilске industrije, industrije bele tehnike, vrtnega programa ter prehranske industrije. Prav v vseh omenjenih industrijah, pa je podjetje tudi s svojo drugo dejavnostjo – z brizganjem izdelkov iz termoplastov, deležno precejšnjega ugleda.

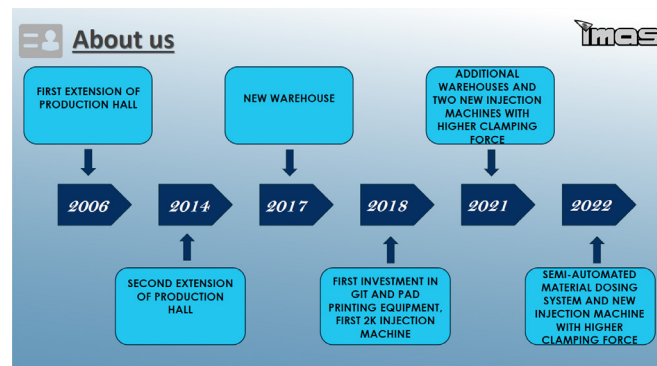
Izdelki se proizvajajo izključno po naročilu za znanega kupca, zato gre v večini primerov za specifično proizvodnjo. Prednost je vsekakor v tem, da podjetje že od samega začetka zasnove izdelka (razvojna faza) sodeluje s kupci, tekom sodelovanja pa stremijo s kupcem tudi k medsebojnemu iskanju potencialno ugodnejših rešitev in izboljšav obstoječih produktov. Prav ta fleksibilnost in odzivnost daje podjetju dodano vrednost, saj poleg tega, da išče nove inovativne rešitve, podjetje s tem tudi raste in se razvija. Da ideje ne zamrejo, pa igra tukaj pomembno vlogo dostopnost in komplementarnost obeh dejavnosti, orodjarne in plastike, saj se na ta način lahko nemudoma implementira nove rešitve. Zadnjih nekaj let pa se podjetje intenzivno vključuje v razne raziskovalno-razvojne projekte – tako individualno kot v konzorciju z drugimi podjetji, ki so sofinancirani s strani države oz. EU. Pri tovrstnih projektih gre predvsem za razvoj novih izdelkov in storitev ter izboljšavo obstoječih proizvodnih procesov z raznimi vitkimi pristopi ter implementacijo smernic Industrije 4.0.

The company was founded in 1990 and belongs to medium-sized companies. A successful, innovative company has developed from a craft activity that dealt with design, automation and tool making, which today employs more than 80 people and operates both on the domestic and international markets. The company is primarily recognized as a supplier of high-quality and technologically demanding tools for injection molding of thermoplastics in the automotive industry, white goods industry, garden program and food industry. In all the mentioned industries, the company also enjoys a considerable reputation with its other activity - the injection molding of thermoplastic products.

The products are produced exclusively to order for a well-known customer, so in most cases it is a specific production. The advantage is definitely in the fact that the company cooperates with customers from the very beginning of the product design (development phase), and during the cooperation they also strive with the customer to find potentially more favorable solutions and improvements to existing products. It is this flexibility and responsiveness that gives the company added value, because in addition to looking for new innovative solutions, the company also grows and develops. The accessibility and complementarity of the two activities, tool shop and plastics, play an important role here so that ideas do not die, as this way new solutions can be implemented immediately. For the past few years, the company has been intensively involved in various research and development projects - both individually and in a consortium with other companies that are co-financed by the state or EU. Projects of this type mainly involve the development of new products and services and the improvement of existing production processes with various lean approaches and the implementation of Industry 4.0 guidelines.



Prav zaradi tega si podjetje v prihodnosti vsekakor želi pričeti z razvojem lastnih izdelkov, tako na segmentu orodjarstva kot tudi brizganih izdelkov. Ta aktivnost bo podjetju pripomogla k večji, hitrejši in bolj stabilni rasti, nenazadnje pa bo omogočila večjo konkurenčno prednost v lokalnem gospodarskem okolju.



It is for this reason that the company definitely wants to start developing its own products in the future, both in the segment of tool making and injection molded products. This activity will help the company to grow more, faster and more stable, and last but not least, it will enable a greater competitive advantage in the local economic environment.

PROIZVODI / STORITVE:

- Avtomobilska industrija: orodja (kalupi) za brizganje avtomobilskih luči, orodja za kabinske dele avtomobilov ter za ostale dele avtomobilov idr.;
- industrija bele tehnike: orodja za male gospodinjske aparate, dele hladilnikov idr.;
- vrtni program: orodja za vrtno pripomočke (lopate, vrtni navijalci) idr.;
- prehrabna industrija: orodja za jedilne pladnje, kozarce idr.

Iz vseh omenjenih segmentov se poleg orodij za brizganje (orodjarna), izvaja serijsko brizganje izdelkov iz najrazličnejših vrst termoplastov kot so npr.: PP, PE, PS, SB, ABS, PST, TPE, PA, PET, POM, PMMA, PC, PPS itd.

Ostale storitve: vzdrževanje, optimizacija in spremembe orodij, poliranje orodij na visok sijaj, lasersko varjenje, izvajanje meritev s CMM merilnim strojem.

PRODUCTS & SERVICES:

- Automotive industry: injection tools (molds) for car lights, tools for car cabin parts and other car parts, etc.;
- white goods industry: tools for small household appliances, refrigerator parts, etc.;
- garden program: tools for garden accessories (shovels, garden winders) etc.;
- food industry: tools for dinner trays, glasses, etc.

From all the mentioned segments, in addition to injection molds (tool shop), serial injection molding of products from various types of thermoplastics is carried out, such as: PP, PE, PS, SB, ABS, PST, TPE, PA, PET, POM, PMMA, PC, PPS, etc.

Other services: maintenance, optimization and changes of tools, polishing tools to a high gloss, laser welding, performing measurements with a CMM measuring machine.

INEA d.o.o



INEA d.o.o.
Stegne 11
1000 Ljubljana
Slovenija, EU
+386(0)1 5138 100
info@inea.eu
www.inea.eu

Gradimo, avtomatiziramo in digitaliziramo proizvodne linije ter z inovativnimi in trajnostnimi pristopi ustvarjamo industrijo prihodnosti.

We build, automate, and digitize production lines, using innovative and sustainable approaches to reshape the industry of the future.

INEA diktira standarde odličnosti z neomajno odločnostjo in strastjo do tehnologije. Znanje, napredne tehnologije in inovacije združuje v celovite rešitve na ključ, ki oblikujejo sodobno proizvodnjo.

INEA je bila ustanovljena leta 1987 kot spin-off Instituta Jožef Stefan, oddelka za jedrsko in procesno tehniko. Do danes je uspešno zaključila več kot 3.000 projektov na vseh celinah in ostaja uveljavljen partner vodilnih ponudnikov tehnologij, kot so AVEVA, Siemens, Rockwell Automation, 3DS in drugi. Zavezana je zagotavljanju celovite izkušnje, ki stranke in njihove proizvodne procese usmerja k neprimerljivi produktivnosti in trajnostni prihodnosti.

REŠITVE:

- specializirane proizvodne linije
- integriran nadzor kakovosti
- proizvodna informatika
- procesna avtomatizacija
- INEA inGenious – industrijski energetski management
- INEA inSpect – vizualna kontrola kakovosti
- INEA inClass – avtomatizirana sestava zaslonov

CERTIFIKATI:

ISO 9001, ISO 50001, AVEVA Endorsed System Integrator, Siemens Solution Partner – Smart Expert, Rockwell Automation Silver System Integrator

Driven by unstoppable determination and passion for technology, INEA is shaping the future of industry with a clear focus: uniting advanced technology, knowledge, and innovation to design, build, integrate and maintain turnkey systems that shape and empower modern manufacturing. Founded in 1987 by the Jozef Stefan Institute, Nuclear engineering division, INEA has successfully delivered over 3,000 projects worldwide in industrial automation, digitalization, and energy management and continues to be recognized as a solution delivery partner for AVEVA, Siemens, Rockwell Automation, 3DS, and others.

Today, INEA stays committed to delivering a well-rounded experience, which empowers customers and their manufacturing processes on their path to unprecedented productivity and fostering a sustainable future.

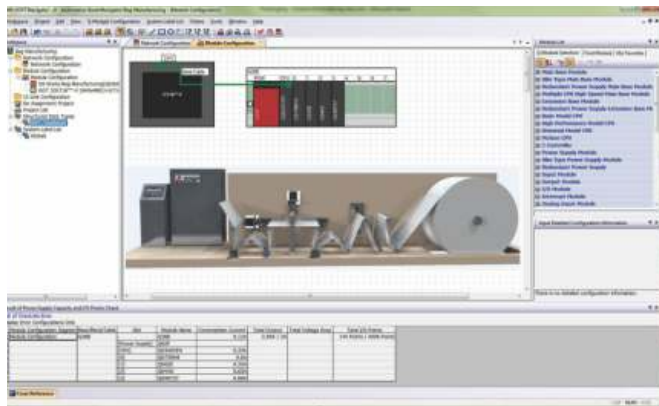
SOLUTIONS:

- specialized production lines
- integrated quality control
- manufacturing intelligence solutions
- process automation solutions
- INEA inGenious - industrial energy management
- INEA inSpect – visual quality control
- INEA inClass – automated display assembly

CERTIFICATES:

ISO 9001, ISO 50001, AVEVA Endorsed System Integrator, Siemens Solution Partner – Smart Expert, Rockwell Automation Silver System Integrator Partner

RBT Technologies



Podjetje RBT Technologies nudi proizvode in rešitve za avtomatizacijo in digitalizacijo proizvodnih okolij in infrastrukture.

**RBT Technologies - Oprema
za avtomatizacijo in
digitalizacijo d.o.o**

Stegne 11
1000 Ljubljana
Slovenija, EU

T: +386 (0)1 01 513 81 00
info@rbt-technologies.si
www.rbt-technologies.si

Podjetje RBT Technologies d.o.o. prodaja proizvode in rešitve za avtomatizacijo in digitalizacijo industrijskih okolij in infrastrukture. Podjetje nudi proizvode za avtomatizacijo (PLC krmilniki, HMI paneli, servo pogoni, stikalna oprema, roboti, frekvenčni pretvorniki in SCADA), komunikacijske vmesnike (modemi za oddaljeni dostop in komunikacijski pretvorniki) ter OPC platforme (OPC Server in OPC Router). Podjetje v zadnjih letih poleg področja opreme za avtomatizacijo nudi in razvija tudi ponudbo za področje digitalizacije proizvodnje in infrastrukture – zajem, prikaz in obdelava podatkov, umetna inteligenca ter pošiljanje podatkov na različne odjemalce (Cloud, baze podatkov, IIoT aplikacije,...) za različne potrebe končnih odjemalcev.

RBT Technologies d.o.o. je zastopnik za proizvajalce Mitsubishi Electric, HMS Networks, Kepware in Inray Industriesoftware. Preko hčerinskih podjetij RBT Technologies Zagreb in RBT Technologies Beograd je podjetje neposredno prisotno tudi na Hrvaškem in v Srbiji, preko partnerjev pa tudi na področju Bosne in Hercegovine, Črne gore, Albanije, Kosova in Severne Makedonije.

PROIZVODI / STORITVE:

- PLC krmilniki
- servo pogoni
- frekvenčni pretvorniki
- kolaborativni in industrijski roboti
- stikalna oprema
- SCADA nadzorni sistemi
- HMI paneli
- komunikacijski pretvorniki
- modemi za oddaljeni dostop
- OPC strežniki, OPC routerji

Company RBT Technologies Ltd. is a distributor of products and solutions for automation and digitalization of industrial environments and infrastructure. Company offers automation products (PLC controllers, HMI panels, servo drives, switchgear equipment, robots, frequency inverters and SCADA), communication interfaces (remote access modems and communication converters) and OPC platforms (OPC Server and OPC Router). In recent years, in addition to automation equipment, company has been developing and offering solutions for digitalization of production environments and infrastructure, including tools for data acquisition, data visualization, data processing, artificial intelligence, and data transmission to various clients/applications (Cloud, databases, IIoT applications, etc.) to meet different end user needs.

RBT Technologies Ltd. is a distributor of Mitsubishi Electric, HMS Networks, Kepware and Inray Industriesoftware. Through its subsidiaries, RBT Technologies Zagreb and RBT Technologies Belgrade, the company has a direct presence in Croatia and Serbia, while also indirectly operating through partners in Bosnia and Herzegovina, Montenegro, Albania, Kosovo, and North Macedonia.

PRODUCTS & SERVICES

- PLC controllers
- servo drives
- frequency inverters
- collaborative and industrial robots
- switchgear
- SCADA control system
- HMI panels
- protocol converters
- remote access routers
- OPC servers, OPC routers

INTRAKON D.O.O.



INTRAKON D.O.O.

Andrej Kokol

031637605

kokolandrej2@gmail.com

Ključne pristojnosti podjetja so:

- zasnova, razvoj in management raziskovalno-razvojnih in drugih projektov,
- priprava vlog na javne razpise v SLO in tujini,
- povezovanje podjetij in vseh drugih zainteresiranih strani v skupne sinergijske projekte,
- uvajanje in uporaba metod ustvarjalnega razmišljanja in inovacijski management,
- uvajanje in vzdrževanje sistemov za obvladovanje tveganj,
- strateški management in
- uvajanje IKT poslovnih programskih rešitev.

Podjetje je aktivno tudi na področju razvoja senzorskih sistemov in tehnologij.

The core competencies of the company are:

- *the design, development and management of R&D and other projects,*
- *the preparation of applications for tenders in SLO and abroad,*
- *the connection of companies and all other interested parties in joint synergetic projects,*
- *introduction and application of creative thinking methods and innovation management;*
- *introduction and maintenance of risk management systems;*
- *strategic management; and*
- *implementation of ICT business software solutions.*

The company is also active in the development of modern sensor systems and technologies.

ISKRA, d.o.o.



ISKRA, elektro in sistemske rešitve, d.o.o.

Stegne 21
1000 Ljubljana
Slovenija, EU

+386(0)1 513 10 00
iskra@iskra.eu
www.iskra.eu

Iskra je globalno priznan ponudnik inteligentnih industrijskih rešitev in vrhunskih elektro-tehničnih izdelkov.

Navdihuje nas tradicija, bogati in motivira pa nas profesionalno znanje. Z Iskro boste izboljšali obstoječe aplikacije in predstavili nove tehnologije na poslovnih področjih:

Komponent:

- stikalne in merilne tehnike,
- kondenzatorjev in baterij.

Rešitev:

- prometa,
- telekomunikacij,
- energetike.

Že 70 let je Iskra največje središče znanja v regiji. Razvijamo najbolj zahtevne projekte svojega časa. Naše rešitve je mogoče najti na vseh kontinentih sveta, kjer predstavljajo ključne sistemske gradnike v različnih panogah.

V Iskri kreiramo trajnostne rešitve za inteligentno avtomatizacijo javne infrastrukture, energetske učinkovitost, upravljanje domov in industrije ter proizvajamo napredne izdelke na področju električnih inštalacij elektronskih naprav. Skozi več kot 70-letno zgodovino smo z dobavo vrhunskih kakovostnih komponent, naprav, inovativnih rešitev in učinkovito sistemsko integracijo na več kot 80 svetovnih trgih izgradili ime Iskra kot spoštovanja vrednega partnerja.

V Iskri vam skupaj z orodjarno in strojogradnjo omogočamo celovite rešitve razvoja izdelka in izdelave orodij, hkrati pa našim uporabnikom na istem mestu ponudimo tudi celovito rešitev in izdelavo proizvodnih linij ter strojev.

Iskra is a globally recognized provider of intelligent Industrial solutions and cutting-edge electrotechnical products.

We are inspired by tradition. Enlightened by professional knowledge and motivated by know-how. With Iskra you will be able to improve existing applications and introduce new technologies in following strategic business areas:

Components:

- low voltage switchgear and electrical measuring instruments,
- capacitors and batteries.

Solutions:

- traffic solutions,
- energy solutions,
- telecommunication solutions.

For 70 years, Iskra has been the largest center of knowledge in the region, developing some of the most demanding projects. Our solutions can be found in all continents of the globe and usually represent crucial system building blocks in various industries.

At Iskra, we create sustainable solutions for intelligent automation of public infrastructure, energy efficiency, home and industrial management. We manufacture advanced products in the field of electrical installations of electronic devices. Through more than 70 years of history, we have built the Iskra name as a reputable partner by supplying the highest quality components, devices, innovative solutions, and efficient system integration to more than 80 world markets.

At Iskra, together with tooling workshop and machine building, we provide complete solutions for product development and tooling, while at the same time offering our users a complete solution and production of production lines and machines.

Iskra AMS d.o.o.



Iskra Avtomatizacija in Merilni Sistemi d.o.o.

Savska loka 4
4000 Kranj
Slovenija, EU

T: +386(0)4 237 55 10
F: +386(0)4 237 55 79
info@iskra-ams.si
www.iskra-ams.si

Selitve strojne opreme.
Fotografija: arhiv Iskre AMS d.o.o..

Iskra Avtomatizacija in merilni sistemi d.o.o. je hčerinsko podjetje Iskra ESV d.o.o.

Smo kakovostni proizvajalec: merilne opreme, montažnih linij, avtomatizirane strojne opreme in ponudnik storitev vzdrževanja ter selitev in montaže industrijske opreme.

PRODUKTI / STORITVE:

Merilna in testna oprema

Za števce el. energije

- Stacionarna oprema
- Prenosna oprema

Industrijska avtomatizacija

- Avtomatizacija linije in stroji
- Robotske celice
- Namenski stroji

Vzdrževanje in storitve

- Vzdrževanje strojev
- Kalibracija merilne opreme
- Strojne usluge
- Selitve strojne opreme

Zastopstva

KANSAI HELIOS Slovenija d.o.o



KANSAI HELIOS Slovenija d.o.o.

Količevo 65
1230 Domžale
Slovenija, EU

+386(0)1 722 40 00
office@kansai-helios.si
www.kansai-helios.si

Podjetje KANSAI HELIOS Slovenija d.o.o. s sedežem v Količevem v Domžalah zaposluje približno 850 sodelavcev. Ustanovljeno je bilo leta 1924, danes pa s proizvodnimi enotami deluje na dveh lokacijah: v Količevem in v Preski. KANSAI HELIOS Slovenija predstavlja evropski center za razvoj skupine KANSAI HELIOS in je tudi največje podjetje v Skupini.

V svetu okoljske odgovornosti in inovacij v industrijski panogi podjetje KANSAI HELIOS Slovenija izstopa kot eno vodilnih na področju trajnostnega napredka. V središču našega delovanja je zavezanost k ustvarjanju umetnih smol, premazov in barv, ki dosegajo najvišje standarde kakovosti, hkrati pa so okolju prijazni.

Razvijamo polimere in iz njih premaze, ki so okolju prijazni in energetsko učinkoviti. Izdelki so zasnovani tako, da se hitreje sušijo, tehtajo manj in pokrijejo večjo površino z manj nanosi. Vse to prispeva k zmanjšani porabi energije in nižjim stroškom za uporabnike.

PROIZVODI / STORITVE:

- Umetne smole
- Tekoči premazi
- Industrijski premazi za les
- Praškasti premazi
- Cestni premazi
- Avtoreparaturni premazi
- Arhitekturni premazi

KANSAI HELIOS Slovenia Ltd., based in Količevo, Domžale, employs around 850 people. It was founded in 1924 and today operates with production units in two locations: in Količevo and in Preska. KANSAI HELIOS Slovenia is the European development centre of the KANSAI HELIOS Group and is also the largest company in the Group.

In the world of environmental responsibility and innovation in the industrial sector, KANSAI HELIOS Slovenia stands out as one of the leaders in sustainable progress. At the heart of our operations is a commitment to creating synthetic resins, coatings and paints that achieve the highest quality standards while being environmentally friendly.

We develop polymers and coatings that are environmentally friendly and energy efficient. Products are designed to dry faster, weigh less and cover more surface area with fewer applications. All of this contributes to reduced energy consumption and lower costs for users.

PRODUCTS & SERVICES

- Synthetic resins
- Liquid coatings
- Industrial wood coatings
- Powder coatings
- Road markings
- Car refinish coatings
- Architectural coatings

Kolektor Sisteh d.o.o.

KOLEKTOR



Kolektor Sisteh d.o.o.

Zasavska cesta 95
1231 Ljubljana-Črnuče
Slovenija, EU

+3686(0)1 563 63 00
sisteh@kolektor.com
www.kolektor.com

Koncern **Kolektor** je multinacionalka s sedežem v Sloveniji in široko razvejano mrežo podjetij in podružnic v Evropi, Ameriki in Aziji, ki deluje na področju visoko specializirane industrijske proizvodnje.

Kot eden od vodilnih igralcev v globalnih nišah komponent in sistemov za avtomobilsko industrijo, elektroenergetike ter inženiringa in tehnoloških sistemov se želimo v dobi digitalne industrijske revolucije uveljaviti tudi kot vodilni globalni ponudnik rešitev za pametne tovarne.

Priložnost za hitro rast, tudi v sodelovanju s start-upi, pa vidimo predvsem na področju industrijskega interneta stvari (IIoT).

***Kolektor** is a multinational corporation with headquarters in Slovenia, and a wide network of companies and subsidiaries in Europe, America and Asia, operating in a highly specialized industrial production.*

As one of the leading players of the digital industrial revolution in the global niche of components and systems for the automotive, power engineering and engineering and technology systems, we wish to become the leading global provider of solutions for the smart factory.

We pursue opportunities for rapid growth, also in cooperation with startups, mostly in the field of Industrial Internet of Things - IIoT.

LOTRIČ Meroslovje d.o.o.



LOTRIČ METROLOGY

LOTRIČ Meroslovje d.o.o.

Selca 163
4227 Selca
Slovenija, EU

T: +386(0)4 517 07 00

F: +386(0)4 517 07 07

info@lotric.si

www.lotric.si

Skupina LOTRIČ Metrology je s 512 metodami, od katerih jih je kar 249 akreditiranih, vodilni ponudnik meroslovnih storitev »vse v enem«. Večini strank pokrijejo več kot 95 % vseh meroslovnih potreb.

Celotna skupina združuje preko 190 sodelavk in sodelavcev, zaposlenih v 10 podjetjih v 8 državah. S certifikati v 53 državah in QNet mrežo mednarodnih partnerjev zagotavljajo storitve v EU in širše. Med njihovimi referencami je skoraj 26.000 podjetij.

Poslujejo v skladu s standardi ISO/IEC 17065, ISO/IEC 17025, ISO/IEC 17020 in ISO 9001 ter modelom odličnosti EFQM. So odobren preskusni Laboratorij s strani proizvajalca VW (VW 52000).

STORITVE:

- kalibracije
- preskušanja
- overitve, kontrole, kvalifikacije
- certificiranje

NADZORNI SISTEMI PO MERI

- merilni stroji, sistemi in naprave: TRAMES Unique
- kontrolni in nadzorni sistemi: TRAMES Inspection
- nadzor nad parametri okolja: EXACTUM

ZASTOPSTVA

The LOTRIČ Metrology Group, with 512 methods, of which 249 are accredited, is the leading provider of "all-in-one" metrology solutions. They cover more than 95 % of all metrological needs for most clients

The entire group unites over 190 employees working in 10 companies in 8 countries. With certificates in 53 countries and the QNet network of international partners, they provide services within the EU and beyond. Among their references are nearly 26,000 companies. They operate in accordance with ISO/IEC 17065, ISO/IEC 17025, ISO/IEC 17020, and ISO 9001 standards, as well as the EFQM Excellence Model. They are Certified LAB service provider in line with VW 52000.

SERVICES:

- Calibrations
- Testing
- Verifications, Inspections, Qualifications
- Certification

CUSTOM CONTROL SYSTEMS:

- Measuring machines, systems and devices: TRAMES Unique
- Control and inspection systems: TRAMES Inspection
- Monitoring of environmental parameters: EXACTUM

REPRESENTATIONS

LPKF d.o.o.



LPKF Laser & Electronics d.o.o.

Polica 33, Polica
4202 Naklo
Slovenija, EU

+386(0)59 208 800
info@lpkf.si
www.lpkf.si

Sašo Djaip, direktor
dr. Boštjan Pečnik, prokurist

Inženir v laserkem laboratoriju. / Developer in laser lab.
Photo by LPKF Laser & Electronics

LPKF je vodilni dobavitelj lasersko zasnovanih rešitev za tehnološko industrijo. Naši laserski sistemi so ključnega pomena pri izdelavi tiskanih vezij, mikročipov, avtomobilskih delov, sončnih panelov in mnogih drugih komponent.

Naši stroji omogočajo našim strankam izdelavo manjših in natančnejših sestavnih delov. Hkrati pa se povečuje funkcionalnost komponent in odpirajo nove možnosti njihovega oblikovanja. To ustvarja izdelke v vrhu tehnologije, tako za industrijo kot za potrošnike.

Naši zaposleni so strokovnjaki za lasersko tehnologijo in vedo, kako vključiti laserje kot orodje v zmogljive stroje. S tem imamo velik vpliv na napredek v številnih visokotehnoloških sektorjih. Rezultat so hitrejši, manjši in bolj energetsko učinkoviti izdelki ki izboljšujejo področja mobilnosti, mreženja, proizvodnje električne energije in digitalne zabave.

PROIZVODI / STORITVE:

Laserski sistemi za:

- proizvodnjo elektronike,
- raziskave in hitro prototipiranje,
- lasersko varjenje plastike,
- fotovoltaike,
- digitalni laserski transferni tisk,
- procesiranje tankega stekla.

LPKF is a leading supplier of laser-based solutions for the technology industry. Our laser systems are vital in the manufacture of printed circuit boards, microchips, automotive parts, solar panels and many other components.

Our machines allow our customers to manufacture smaller and higher-precision components. At the same time, the functionality of the components can be increased and new design options can be used. This creates products on the cutting edge of technology, both for the industry and for consumers.

Our employees are laser technology experts and know how to integrate lasers as a tool into powerful machines. With that we have considerable influence on progress in a range of high-tech sectors. The outcome is faster, smaller and more energy efficient products and, thus, improvements in mobility, networking, electricity generation and digital entertainment.

PRODUCTS & SERVICES:

Laser Systems for:

- Electronics Manufacturing,
- Research & In-house Prototyping,
- Laser Plastic Welding,
- Photovoltaics,
- Digital Laser Transfer Printing,
- Thin Glass Processing.

MAROVTT d.o.o.



Proizvodnja Marovtt d.o.o., obrat Slovenska Bistrica.

MAROVTT, proizvodno podjetje d.o.o.

Stranice 55
3206 Stranice
Slovenija, EU
www.marovtt.com
info@marovtt.com
+386 (0)3 7572 100

Podjetje Marovtt je že več kot 50 let priznано kot eden najnaprednejših proizvajalcev kovanja v Evropi. Naša osnovna dejavnost vključuje visokokakovostno kovanje, strojno obdelavo kovanja in proizvodnjo struženih delov, pri čemer sodelujemo z najprestižnejšimi blagovnimi znamkami v avtomobilski industriji, kot so Daimler-Mercedes, Audi Group in Volkswagen Group. Kot dobavitelj prvega, najvišjega reda v eni najzahtevnejših industrijskih panog na svetu zagotavljamo vrhunsko kakovost in zanesljivost.

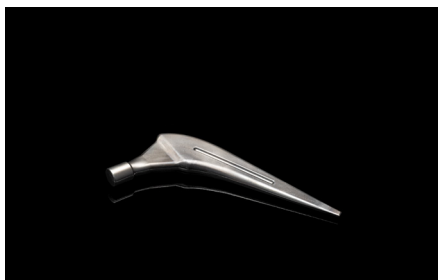
Naša proizvodnja deluje v skladu z najvišjim standardom kakovosti IATF 16949 in je tehnološko najnaprednejša v državi ter se uvršča med vodilne v Evropi. Z učinkovitim razvojem, napredno tehnologijo CCLEAP (Computer Controlled Lean Production), stabilnimi avtomatiziranimi procesi ter kontrolo izdelkov v vseh proizvodnih fazah dosegamo, da so vsi kosi obdelani po popolnoma enakem tehnološkem postopku in so podvrženi vsem kontrolam in preizkusom kakovosti.

Naša organizacija, ki je že uveljavljena v avtomobilski industriji, je naredila pomemben korak v svojem razvoju. Konec leta 2023 smo začeli širiti svoje dejavnosti v druge ključne industrijske sektorje, kot sta letalska in medicinska industrija. Ta odločitev temelji na naših preteklih uspehih in trdnem prepričanju, da lahko svoje strokovno znanje prenesemo na druga področja.

For more than 50 years, company Marovtt has been recognised as one of the most advanced forging manufacturers in Europe. Our core business includes high-quality forging, forging machining and the production of turned parts, working with the most prestigious brands in the automotive industry, such as Daimler-Mercedes, Audi Group and Volkswagen Group. As a first-tier, top-tier supplier in one of the world's most demanding industries, we guarantee top quality and reliability.

Our production operates in accordance with the highest quality standard IATF 16949 and is the most technologically advanced in the country, ranking among the leaders in Europe. Through efficient development, advanced CCLEAP (Computer Controlled Lean Production) technology, stable automated processes and product control at all production stages, we ensure that all parts are processed according to the exact same technological procedure and are subject to all quality controls and tests.

Our organisation, which is already well established in the automotive industry, has taken an important step in its development. At the end of 2023, we started to expand our activities into other key industrial sectors such as the aerospace and medical industries. This decision is based on our past successes and our firm belief that we can transfer our expertise to other areas.



Odkovki podjetja Marovt d.o.o. precizno kovanje

PROIZVODI / STORITVE:

Specializirani smo za izdelavo natančnih odkovkov, katere v celoti obdelamo v lastnem obratu obdelave. Izvajamo tudi toplotno obdelavo, površinsko zaščito ali sestavljanje na podlagi zahtev strank. Ponujamo kompletno storitev v kratkih dobavnih rokih, z najvišjo možno kvaliteto izdelkov po konkurenčnih cenah.

PRODUCTS & SERVICES:

We specialise in the production of precision forgings, which are fully processed in our own processing plant. We can also carry out heat treatment, surface protection or assembly based on customer requirements. We offer a complete service with short delivery times, with the highest possible product quality at competitive prices.

MARSI GROUP, brizganje plastičnih izdelkov d.o.o

MARSi group



Slovenska vas 4K
8261 Jesenice na Dolenjskem
Slovenija, EU
+386 (0)8 205 86 93
info@marsi.at
www.marsi.at

MARSI Group je rešitev na enem mestu za vse vaše proizvodne potrebe. Kot slovensko B2B podjetje nudimo celovito paleto storitev, vključno s 3D-tiskom kovin s tehnologijo DMLS, 3D-skeniranjem in meroslovnimi storitvami, brizganjem plastike, ekstrudiranjem plastičnih izdelkov, izdelavo kalupov in svetovanjem. Imamo dokazano uspešnost in posluje od leta 2010 ter se nenehno razvijamo in širimo svoje zmogljivosti, da bi zadovoljili potrebe naših strank.

Naše podjetje je specializirano za masovno proizvodnjo plastičnih delov z brizganjem in ekstrudiranjem, pri čemer proizvede do 300 milijonov izdelkov letno s popolnoma avtomatiziranimi procesi. Izvajamo tudi maloserijsko proizvodnjo preko 600 različnih izdelkov in uporabljamo In-Mould Labeling (IML) za izdelavo posebnih plastičnih pokrovov za prehransko industrijo. V sektorju brizganja uporabljamo dvokomponentno brizganje z vrtljivo mizo za izdelke iz dveh različnih materialov najvišje kakovosti.

Naša ekipa strokovnjakov zagotavlja, da bodo vaši izdelki izdelani vrhunske kakovosti.

Prizadevamo si izpolniti edinstvene potrebe naših strank z nenehnim vlaganjem v opremo, nove tehnologije in izboljšave procesov, kar zagotavlja, da so naše storitve na visokem standardu. Naš temelj je kultura medsebojnega spoštovanja in dolgoročnega sodelovanja z zaposlenimi in poslovnimi partnerji.

Pišite nam še danes in dovolite nam, da vam pomagamo doseči vaše proizvodne cilje!

PROIZVODI / STORITVE:

- Predelava plastičnih mas
- 3D kovinski tisk
- Raziskave & Razvoj & Inovacije
- 5-osna CNC obdelava
- 3D GOM-ZEISS METROLOGIJA
- Izdelava prototipnih orodij & orodij & orodnih delov

MARSI Group is a one-stop solution for all your manufacturing needs.

As a Slovenian B2B company, we offer a comprehensive range of services including 3D metal printing with DMLS technology, 3D scanning and metrology services, plastic injection moulding, extrusion of plastic products, mould manufacturing and consulting. We have a proven track record of success and have been in business since 2010, constantly evolving and expanding our capabilities to meet the needs of our customers.

Our company specializes in mass production of plastic parts with injection moulding and extrusion, producing up to 300 million products annually with fully automated processes. We also do small series production of over 600 different products and use In-Mould Labelling (IML) for the production of special plastic lids for the food industry. In the injection moulding sector, we use two-component injection moulding with a rotary table for products made of two different materials of the highest quality.

Our team of experts guarantees that your products will be made of the highest quality. Choose MARSi for your next project.

We strive to meet the unique needs of our customers by constantly investing in equipment, new technology and process improvement, which ensures our services are of a high standard. Our foundation is a culture of mutual respect and long-term cooperation with our employees and business partners.

Contact us today and let us help you achieve your manufacturing goals!

PRODUCTS & SERVICES:

- Plastic solutions
- 3D metal printing
- Research & Development & Innovations
- 5-axis CNC machining
- 3D GOM – ZEISS METROLOGY
- Production of prototype molds & molds & mold parts

Merel d.o.o.



**Merel, Proizvodno, svetovalno
in trgovsko podjetje d.o.o.**

Ob gozdu 25
2352 Selnica ob Dravi
Slovenija, EU

T: +386(0)2 229 73 90
F: +386(0)2 229 73 91
info@merel.si
www.merel.si

Podjetje Merel d.o.o. prodaja, vgrajuje, vzdržuje in popravlja analizne sisteme visoke tehnologije naših partnerjev.

PROIZVODI / STORITVE:

- plinska kromatografija,
- GC/MS tekočinska kromatografija,
- LC/MS,
- preparativna tekočinska kromatografija,
- kromatografske kolone in pribor,
- priprava vzorcev s trdnofazno ekstrakcijo (SPE, SPME) UV/VIS/NIR,
- luminiscenčna in FTIR-spektrometrija, AAS in ICP-OES spektrometrija, ICP MS spektrometrija.

*Activities of **Merel d.o.o.** are marketing, distribution, installation, maintenance and service of high technology analytical instruments, accessories and supplies of our partners.*

PRODUCTS & SERVICES:

- Gas chromatography,
- GC/MS liquid chromatography,
- LC/MS,
- preparative liquid chromatography,
- Chromatograph column and tool etc..

Metronik d.o.o.

METRONIK



Metronikova poslovna stavba
Foto: Luka Vunduk

METRONIK d.o.o.

Stegne 9a
1000 Ljubljana
Slovenija, EU

dr. Saša Sokolič, član uprave
Metronika
+386(0)41 708 367
sasa.sokolic@metronik.si
www.metronik.si

Metronik je uveljavljen ponudnik vrhunske tehnologije in inovativnih rešitev za avtomatizacijo in digitalizacijo v industriji, pametnih zgradbah in infrastrukturnih podjetjih.

Metronikove rešitve, ki so rezultat več kot 28-letnih izkušenj in znanja s področja avtomatizacije in digitalizacije ter se osredotočajo na načela industrije 4.0. in IoT, uporabnikom prinašajo veliko dodane vrednosti. Med drugim pomagajo izboljšati ponovljivost in stabilnost procesov, vzpostaviti nadzor in jasen vpogled v procese, omogočajo analizo procesov ter vzpostavljajo temelje za optimizacijo, znižanje stroškov in dvig produktivnosti. Metronik sodeluje s svetovno uveljavljenimi podjetji, ki delujejo na področju tehnologij za avtomatizacijo in digitalizacijo, rešitve v okviru družine MePIS pa so plod lastnega razvoja.

PROIZVODI / STORITVE:

- avtomatizacija klimatizacije in energetike v industriji in zgradbah,
- avtomatizacija proizvodnih procesov,
- vzpostavitev centralnega podatkovnega repozitorija,
- rešitve velikega podatkovja za proizvodnjo,
- MES,
- merjenje ključnih proizvodnih kazalnikov vključno z OEE,
- rešitve za operativno odličnost (OPEX),
- poročila in analitika,
- računalniški nadzor procesov in centralni nadzorni sistem,
- rešitve za serializacijo, agregacijo in track & trace,
- sistem sledljivosti materialov in dogodkov,
- upravljanje receptur,
- energetski menedžment,
- rešitve za upravljanje delovnih tokov,
- svetovanje.

Metronik is a trusted and innovative provider of automation systems and IT solutions for digitalization in industry, smart buildings and critical infrastructure.

Metronik's solutions, focusing on Industry 4.0 and IoT principles, are the result of more than 28 years of knowledge and experience in automation and digitalization. The added value provided for our business partners is based on improved management and control of their processes, identification of cost-saving opportunities and development of optimization initiatives. Metronik has a comprehensive portfolio of its proprietary state-of-the-art solutions (MePIS). It also cooperates with global companies for automation and digitalization technologies.

PRODUCTS & SERVICES:

- automation of HVAC and energy systems in industry and buildings,
- automation of production processes,
- central data repository,
- Big Data in production,
- MES,
- OEE,
- Operational Excellence (OPEX),
- reports and analytical services,
- central supervisory system,
- serialization, aggregation and Track & Trace,
- traceability and genealogy,
- managing recipes,
- energy management,
- workflow engine,
- consulting.

Optotek d.o.o.



Optotek d.o.o.

Zgornji Brnik 130H
4210 Brnik Aerodrom
Slovenija, EU

www.optotek-medical.com

optotek@optotek.si

Podjetje **Optotek d.o.o.** zagotavlja inovativne optične in laserske rešitve za oftalmološke aplikacije. Tesno sodelovanje med razvojem in marketingom predstavlja osnovo za razvoj novih produktov za pokrivanje potreb trga. Certifikat ISO 13485 skupaj z najsodobnejšimi izdelki in konkurenčnimi cenami, ponuja kombinacijo sofisticiranosti in vrednosti brez kompromitiranja kakovosti in varnosti. Strategija podjetja je nenehno razvijati nove rešitve, aplikacije in izdelke. Verjamemo v krepitev ustvarjalnega in inovativnega ozračja v podjetju z namenom ohranjanja učinkovitosti in nenehnega izboljševanja procesov ter povečevanja motivacije zaposlenih.

Optotek gradi trdne, nepristranske in spoštljive odnose s svojimi strankami, poslovnimi partnerji in družbo, tako da skrbi za njihove želje, zahteve in pričakovanja. Oprema, ki jo je izdelal Optotek, se uporablja na vseh celinah sveta.

PROIZVODI / STORITVE:

Podjetje Optotek d.o.o. proizvaja laserske oftalmološke sisteme za posteriorno kapsulotomijo, iridotomijo ter selektivno lasersko trabekuloplastiko.

***Optotek d.o.o.** provides innovative optical and laser solutions for applications in ophthalmology. Strong link between development and marketing helps the company to develop new products to meet the emerging need of the marketplace. The ISO 13485 certified facility, combined with state-of-the-art products and competitive prices, offers a combination of performance and value without quality and safety being compromised. The company's strategy is to continuously develop new solutions, applications and products. We believe in fostering a creative and innovative atmosphere in the company with the purpose of maintaining effectiveness and continually improving processes and increasing employee motivation.*

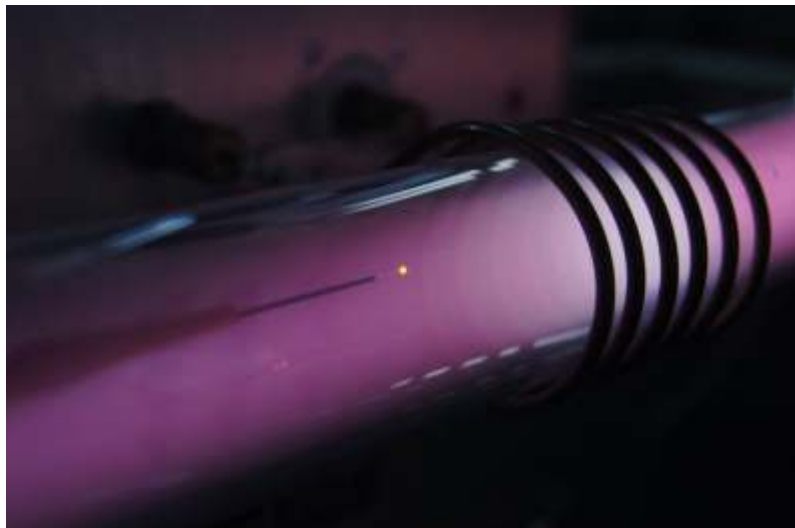
Optotek builds solid, impartial and respectful relationships with its customers, business partners and society by paying attention to their desires, requests and expectations. The equipment built by Optotek is in use on all continents of the world.

PRODUCTS & SERVICES:

Optotek d.o.o. manufactures laser ophthalmic systems for posterior capsulotomy, iridotomy and selective laser trabeculoplasty.

Plasmadis d.o.o.

PLASMADIS



Plasmadis d.o.o.

Teslova ulica 13
1000 Ljubljana
Slovenija, EU

gregor.primc@plasmadis.com
www.plasmadis.com

Žareča konica sonde v reaktorju z visoko stopnjo reaktivnih radikalov za obdelavo poljubnih materialov
Glowing sensor's tip in a reactor with high density of reactive gas eous radicals for treating various materials

Podjetje **Plasmadis** je bilo ustanovljeno leta 2015 z namenom trženja izvirnih tehnoloških rešitev na področju plazemskih tehnologij, posebej karakterizacije neravnovesne plinske plazme z visoko stopnjo disociiranosti plinskih molekul.

Podjetje zaposluje 5 visoko izobraženih sodelavcev z doktorati znanosti s področja elektronskih vakuumskih tehnologij, ekoloških tehnologij in managementa. Ob ustanovitvi je z Institutom »Jožef Stefan« (IJS) podpisalo licenčno pogodbo o uporabi nekaterih tehnologij, ki so bile razvite na IJS, in oblikovanju teh tehnologij v tržne produkte kakor tudi trženju le-teh, kar ne sodi med dejavnosti Instituta.

Podjetje Plasmadis proizvaja in prodaja naprave za karakterizacijo plazme ter storitve integracije teh naprav industrijskim in raziskovalnim partnerjem na svetovnem trgu.

Ključna naprava, ki je zaščiten s patentno prijavo, je lasersko-krmljen optični katalitični senzor (LOKS), ki ga je mogoče integrirati z nekaterimi drugimi tehnikami za karakterizacijo visoko neravnovesne plinske plazme, s čimer je zagotovljeno spremljanje kakovosti tehnoloških procesov, ki temeljijo na uporabi plinske plazme. Senzor je primeren za karakterizacijo plazem, ki jih uporabniki vzbujajo z različnimi plinskimi razelektritvami, nepogrešljiva pa je za karakterizacijo plazemskih sistemov, v katerih zaradi narave reaktorjev nastajajo veliki gradienti koncentracije plazemskih radikalov.

Plasmadis was founded in 2015 with the aim of marketing innovative technological solutions in the field of plasma technologies, especially the characterization of non-equilibrium gaseous plasma with a high degree of dissociation of gas molecules.

The company employs 5 highly educated colleagues with PhD degrees in the field of electronic vacuum technologies, eco-technologies and management. At the time of its establishment, the company and Jožef Stefan Institute (JSI) signed a license agreement on the use of certain technologies developed at the Institute and the design of these technologies into marketed products, as well as the marketing of these products, which is not part of the Institute's activities.

Plasmadis manufactures and sells plasma characterization devices and services for the integration of these devices into systems of industrial and research partners all over the world.

A key device, protected by a patent application, is a laser-controlled optical catalytic sensor (LOCS) that can be integrated with some other techniques for characterization of highly non-equilibrium gaseous plasma, thereby ensuring the quality of technological processes based on the use of gaseous plasma. The sensor is suitable for the characterization of plasmas that users excite with different gas discharges, but it is indispensable for the characterization of plasma systems in which, due to the design of the reactors, large gradients in concentration of plasma radicals are formed.

Podkrižnik d.o.o.



Podkrižnik d.o.o.

Loke 33
3333 Ljubno ob Savinji
Slovenija, EU

+386(0)3 839 15 30
info@podkrižnik.si
www.podkrižnik.si

CERTIFIKATI / CERTIFICATES:
ISO 9001
ISO 14001

Smo večje družinsko podjetje zgornje savinjske regije in srednje veliko podjetje v slovenskem gospodarskem merilu. V prizadevnem kolektivu že od leta 1987 uspešno združujemo skupne interese na področju razvoja, proizvodnje, trgovine, posredništva različnih tehničnih rešitev.

Naš ideal je poslovna odličnost, zato velik poudarek namenjamo visokemu organizacijskemu nivoju, redu in čistoči, varovanju okolja, samoiniciativnosti in samokontroli. Naša osnovna filozofija je preprosta: imamo prizadevnega človeka, voljo, znanje, najsodobnejšo tehnologijo in moč, da dosežemo mogoče in nemogoče.

Smo sistemski dobavitelj večjim svetovnim korporacijam, ki so prisotni v različnih industrijah. Naše podjetje zagotavlja znanim kupcem celovite rešitve na področju razvoja, prototipiranja, testiranja in proizvodnje zahtevnejših mehanizmov. Naši produkti zagotavljajo delovanje sistemov na področjih:

- profesionalnih ročnih orodij,
- bele tehnike,
- stavbne tehnike,
- strojegradnje,
- avtomatizacije.

Vrednota podjetja je pošteno in dolgoročno poslovanje z našimi partnerji. Poslanstvo podjetja je zagotoviti kreativnim ljudem vso potrebno opremo za realizacijo ustvarjenih idej. Razvoj in tehnologija sta področji v kateri podjetje stalno vlaga veliko sredstev in zaradi tega podjetje razpolaga z najsodobnejšimi programskimi opremami za razvoj produktov, najsodobnejšimi izdelovalnimi tehnologijami ter merilnimi in testnimi pripravami. Izkušnje, motivirani ljudje in najsodobnejša oprema omogočajo podjetju veliko fleksibilnost, hiter in kakovosten razvoj ter konkurenčno prednost pri ustvarjanju novih produktov.

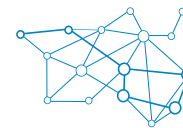
We are one of the larger private companies in the upper Savinja region and a medium-sized company according to Slovenian economic criteria. Our ambitious collective has successfully combined our common interests in the areas of production, trade and brokerage since 1987.

As we strive for business excellence, we put a great deal of effort into ensuring a high organisational standard, orderliness and cleanliness, environmental protection, self-initiative and self-control. Our basic philosophy is simple: we have the ambitious people, will, knowledge, state-of-the-art technology and power to achieve anything and everything. Our employees are our top priority, as they have a place in every technology. Let us therefore not put off until tomorrow what we can already do today.

PRODUCTS & SERVICES:

Production of gearboxes, special metal parts and complex metal-plastic parts.

Process Space d.o.o.



process space®

Process Space d.o.o.

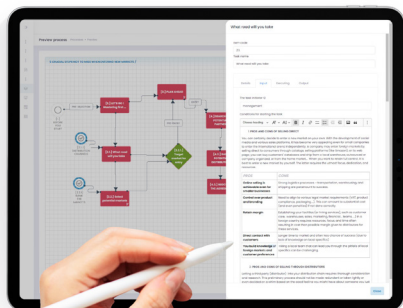
Privoz 3

1000 Ljubljana

Kontakt: Milan Dragič

milan.dragic@process-space.com

tel: 031 770 844



V platformi Process Space® imate vse na enem mestu—vizualno mapiranje procesov in natančen opis vsakega koraka.

In the Process Space® Platform, everything is in one tool—visual process mapping and precise step-by-step instructions.

Ste naveličani nenehnega gašenja požarov, namesto da bi gradili svoje podjetje?

Večino malih in srednjih podjetij začnejo slabi procesi upočasnjevati. Imate velike načrte, a se vsak dan borite, da obdržite stvari na površju. Neurejeni procesi vam kradejo čas in denar, kar si ne morete privoščiti—vlečejo vas navzdol!

Bili smo v vašem položaju. Po desetletjih izkušenj iz različnih podjetij vemo, kaj deluje in kaj ne. Naša ekipa že desetletja pomaga podjetjem, kot je vaše, optimizirati poslovanje. Zato smo razvili Process Space® Platformo - orodje, ki vam omogoča hitrejša, pametnejša in cenejša doseganje ciljev.

Mislite, da je ne potrebujete? Premislite še enkrat. Lahko nadaljujete z garanjem ali pa začnete racionalizirati svoje operacije, odpravljati ozka grla in končno začnete premikati stvari naprej. Ne želimo vam prodajati praznih besed. Tukaj smo, da vam pomagamo voditi vaše podjetje kot to počnejo najuspešnejši.

Izberite Process Space® Platformo in začnite voditi svoje podjetje, ne obratno.

PROIZVODI / STORITVE:

Optimizacija procesov je vaša najboljša investicija—poenostavite jo s **Process Space®** platformo. Ignoriranje poslovnih procesov je kot vožnja z izpraznjeno pnevmatiko—peljali se boste, vendar ne daleč in ne hitro. Process Space® Platforma vam pomaga optimizirati poslovanje, odpraviti ozka grla ter vam prihrani čas in denar. Z našimi ekskluzivnimi Digitalnimi Procesnimi Modeli pridobite profesionalne, prilagodljive predloge, ki temeljijo na preverjenih metodologijah. Ti modeli omogočajo učinkovito implementacijo ali optimizacijo procesov, in lahko nadomestijo potrebo po dragih zunanjih svetovalcih.

Tired of putting out fires instead of growing your business?

Most SMEs hit a wall when poor processes slow them down. You've got big plans, but you're grinding daily to keep things afloat. Messy processes cost you time and money, and you can't afford that—they're dragging you down! We've been there. After decades in the field, we know what works and what doesn't. Our team has spent decades helping businesses like yours get their act together. That's why we built Process Space® Platform, an all-in-one tool that lets you get stuff done faster, smarter, and cheaper.

Think you don't need it? Think again. You can keep grinding or start streamlining your operations, eliminating inefficiencies, and moving the needle. We're not here to sell you fluff. We're here to help you run your business like a pro.

Get the Process Space® Platform and start running your business, not the other way around.

PRODUCTS & SERVICES:

Process Optimization is Your Best Investment—Simplify It with the Process Space® Platform.

*Ignoring business processes is like driving with a flat tyre—you'll move, but not far or fast. The **Process Space®** Platform helps you streamline operations, eliminates inefficiencies, and saves you time and money. With our exclusive Digital Process Models, you get professional, customizable templates based on proven methodologies. These models enable efficient process implementation or optimization, often replacing the need for costly external consultants.*

PS, d.o.o., Logatec



PS, d.o.o., Logatec

Kalce 30b
1370 Logatec
Slovenija, EU

+386(0)1 750 85 10
ps-log@ps-log.si
www.ps-log.si

Smo podjetje s 30-letno tradicijo na področju avtomatizacije in izdelave namenskih strojev in naprav. V ekipi 25 zaposlenih so strokovnjaki s področja elektronike, mehatronike in programske opreme. Naše aktivnosti segajo od izvedbe avtomatizacije na projektih, ki jih mehansko projektirajo in izdelajo naši partnerji do izdelave celotnih strojev in proizvodnih linij. Doslej smo izvedli veliko projektov z zelo različnih področij in si nabrali izkušnje pri delu z različnimi tehnologijami. Naši projekti delujejo tako v Sloveniji kakor tudi drugod po svetu (Rusija, Velika Britanija, Ukrajina, ZDA, Katar ...). Uporabniki naše opreme so s področja avtomobilske industrije, proizvodnje kamene volne, žagarstva, livarstva in drugih področij.

Poleg področja izdelave strojev in naprav zastopamo tudi nekaj pomembnih proizvajalcev komponent s področja avtomatizacije kot so servo pogoni, frekvenčni pretvorniki, varnostne komponente idr.

V prihodnosti si želimo povečati prisotnost na področju ponudbe namenskih strojev in se še intenzivneje vključevati v razvojne projekte naših partnerjev.

PROIZVODI/STORITVE:

- robotske celice za obdelavo in manipulacijo,
- merilne naprave za avtomatsko merjenje obdelovancev,
- namenski stroji in naprave po željah kupcev,
- stroji za proizvodnjo kamene volne,
- predelave strojev za doseganje višje stopnje avtomatizacije.

We are company with 30-year tradition in the field of automation and production of dedicated machines and devices. Our team of 25 employees includes experts in electronics, mechatronics and software. Our activities range from the implementation of automation on projects that are mechanically designed and manufactured by our partners to the production of complete machines and production lines. So far, we have carried out many projects in very different fields and gained experience in working with different technologies. Our projects operate in Slovenia as well as in the rest of the world (Russia, Great Britain, Ukraine, USA, Qatar,...) Users of our equipment are in the field of automotive industry, stone wool production, sawmill, foundry and other areas.

In addition to manufacturing machinery, we also represent some important manufacturers of automation components such as servo drives, frequency inverters, safety components, etc.

In the future, we want to increase our presence in the field of dedicated machines and to become more involved in the development projects of our partners.

PRODUCTS&SERVICES:

- robotic cells for machining and manipulation,
- measuring devices for the automatic measurement of workpieces,
- dedicated machines and devices to customer specifications,
- stone wool production machines,
- remodeling machines to achieve a higher level of automation.

QLECTOR, razvoj celovitih rešitev za pametne tovarne, d.o.o.



**QLECTOR, razvoj celovitih rešitev za
pametne tovarne, d.o.o.**
Rovšnikova ulica 7

1210 Ljubljana-Šentvid

Qlector je visokotehnološko zagonsko podjetje, ki na osnovi umetne inteligence (AI) razvija rešitve za pametne tovarne in Industrijo 4.0. Temeljna rešitev Qlectorja je AI platforma Qlector LEAP, ki kot napredno orodje za usmerjanje, napovedovanje in planiranje proizvodnje samodejno gradi in vzdržuje digitalnega dvojčka celotnega podjetja. Na osnovi matičnih podatkov, ki jih pomaga urejati in vzdrževati, podjetjem omogoča, da se na nepredvidene dogodke v proizvodnji, kot so zastoji, izpadi in zamude, ustrezno pripravijo ter bistveno omilijo njihove posledice ali pa se jim celo popolnoma izognejo. V Qlectorjevi ekipi so mednarodno uveljavljeni strokovnjaki za strojno učenje in podatkovno rudarjenje z referencami v podjetjih, kot so Bloomberg, New York Times, British Telecom, Agrana in Continental. Močno so povezani z raziskovalno skupnostjo, predvsem z Laboratorijem za umetno inteligenco na Institutu Jožef Stefan. Objavili so številna izvirna dela na področju strojnega učenja, podatkovnega rudarjenja, analize omrežja in semantičnega spleta. Njihova največja dodana vrednost pa je sposobnost uvajanja najsodobnejših tehnologij v prakso in reševanje ključnih izzivov pri optimizaciji dela ter izboljševanju učinkovitosti in fleksibilnosti v proizvodnih podjetjih.

PROIZVODI / STORITVE:

QLECTOR LEAP je platforma v oblaku, ki na osnovi najsodobnejših tehnologij umetne inteligence in digitalnih dvojčkov proizvodnim podjetjem omogoča celovito usmerjanje, napovedovanje in planiranje (ter mikropolaniranje) proizvodnje. Tako lahko uporabniki učinkovito in proaktivno prilagajajo plane dejanskemu stanju oz. dogajanju v proizvodnji, optimizirajo zaloge in optimalno razporejajo delavce. Z uvedbo rešitve Qlector LEAP lahko podjetja izboljšajo svojo OEE do 5%, učinkovitost na posameznega delavca pa se lahko poveča za kar 30% do 50%.

Qlector LEAP se povezuje s SAP in drugimi sistemi ERP, pa tudi s sistemi IoT in MES, da zajema podatke v realnem času in sinhronizira digitalnega dvojčka s trenutnim stanjem v podjetju. Tako lahko ustvari digitalne entitete vseh ključnih proizvodnih elementov – opreme, objektov, proizvodnih linij in ekip delavcev ter za vse proizvodne plane izračuna različne stopnje verjetnosti realizacije.

***Qlector** is a high-tech start-up developing artificial intelligence-based solutions for smart factories in the age of Industry 4.0. Qlector's core product is the AI platform Qlector LEAP. As an advanced production planning and scheduling (APS) tool, Qlector LEAP automatically creates and maintains a data-driven digital twin of an entire enterprise. It basically revolutionizes the way manufacturing companies work – going from re-acting to pre-acting. Qlector's core team consists of machine learning and data mining experts whose credentials range from Bloomberg, the New York Times, and British Telecom to Agrana and Continental. They have close ties to the research community, particularly the Artificial Intelligence Laboratory at the Jožef Stefan Institute. Qlector team members have published original work in machine learning, data mining, text mining, information retrieval, network analysis, and semantic web. Their greatest asset is their ability to put cutting-edge technologies into practice and solve the key challenges of manufacturing companies to optimize work processes and ensure much higher efficiency and flexibility.*

PRODUCTS & SERVICES:

QLECTOR LEAP is a cloud-based platform developed on the latest artificial intelligence and digital twin technologies. It enables manufacturing companies to comprehensively direct, forecast, plan and schedule production. Users can now efficiently and proactively adjust plans and schedules to actual production situations and events, optimize stocks and optimally allocate workers. With Qlector LEAP, companies can improve OEE by up to 5% while increasing efficiency per worker by 30% to 50%.

Qlector LEAP connects to SAP and other ERP systems, as well as IoT and MES systems, to capture real-time data and synchronize the digital twin with the current state of the enterprise. Using the digital twin and the captured real-time data, the platform creates digital entities of all key production elements (equipment, facilities, production lines and teams of workers) and calculates different probability levels of planned production execution.

Result d.o.o.



Result d.o.o.
Celovška cesta 182
1000 Ljubljana
Slovenija, EU

+386(0)1 542 17 80
info@result.si
www.plansphere.io

V **RESULTU** optimiziramo poslovanje rastočim podjetjem.

Gradimo informacijske sisteme, ki jim pomagajo pridobiti nadzor nad poslovanjem, znižati stroške, pospešiti procese in premagati konkurente. Že 30 let nam zaupajo tuje multinacionalke in domača hitrorastoča podjetja, od malih do največjih. Ekipa šteje preko 70 strokovnjakov in beleži 100 % rast v zadnjih treh letih, sestavljena pa je iz programskih ali podatkovnih inženirjev, podatkovnih analitikov in inženirjev poslovnih procesov.

Z uporabo poslovne in procesne inteligence, prilagodljivejšim poslovnim planiranjem, avtomatskim planiranjem proizvodnje, z vpeljavo podatkovne inteligence in povezovanjem najnovejših tehnoloških orodij lajšamo in pospešujemo delo na področjih upravljanja, prodaje, kadrovske službe, dobavnih verig, proizvodno-obdelovalnih procesov, podpore in IT.

Partnerjem v proizvodni panogi s pomočjo rešitve avtomatskega planiranja proizvodnje zmanjšujemo zastoje, preprečujemo zamude in ohranjamo njihovo konkurenčno prednost.

PROIZVODI / STORITVE:

- Avtomatsko planiranje proizvodnje
- AI rešitve
- Poslovna inteligenca
- Poslovno planiranje
- Implementacija ERP Microsoft Dynamics Navision

We help companies grow faster.

Our mission is to accelerate processes for our partners, upgrade systems, optimise business, strengthen growth and improve the future. We are known as one of the most persistent problem-solvers on the market.

We have over 30 years of experience working with the largest multinational companies. The success of all projects is solely the result of the intelligence and perseverance of a remarkable team. It has doubled in the last three years and consists of more than 70 experts.

By using business and process intelligence, we facilitate and accelerate work in the areas of management, business planning, sales, human resources, supply chains, production-processing processes, support and IT.

PRODUCTS / SERVICES:

- Automatic production planning
- AI solutions
- Business Intelligence
- Business Planning
- Implementation of ERP Microsoft Dynamics Navision

RETTRO d.o.o.



RETTRO, Družba za informacijske rešitve, d.o.o.

Pod Plevno 15
4220 Škofja Loka
Slovenija, EU

+386(0)41 831 081
info@rettro.si
www.rettro.si



Naš začetek sega v leto 2006, ko je Damir Erznožnik ustanovil podjetje **Rettro**. V letih 2006-2009 so bili v podjetju večino časa le trije zaposleni. Večina opravljenega dela je bila v obliki podpore večjim podjetjem pri razvoju tehnično in vsebinsko zahtevnih projektov. Poleg podpore velikim podjetjem pa smo ves čas razvijali tudi produkte in storitve za svetovni splet, predvsem prirejene za uporabo na mobilnih napravah. Tako smo že v samem začetku delovanja izdelali celotno storitveno platformo, ki omogoča nudenje storitev na svetovnem spletu in vgrajenih brskalnikih v mobilnih napravah. V letu 2010 so se nam pridružili še trije strokovni sodelavci. Dobro opravljeno delo naše ekipe je rezultiralo v pridobivanju novih naročnikov. Začeli smo z razvojem lastne rešitve RETTRO LASER CAD/CAM, za kar smo prejeli tudi sredstva Evropskega socialnega sklada. Kmalu smo ugotovili, da lokacija v Škofji Loki ne zadošča več našim potrebam, zato smo odprli svojo novo poslovno enoto v Ljubljani. Skozi leta smo rasli in povečali ekipo. V letu 2018 podjetje tako šteje 9 zaposlenih, sodelujemo pa tudi s partnerskim razvojnim podjetjem in samostojnimi razvijalci, s katerimi našo razvojno ekipo prilagajamo potrebam naročnikov.

PROIZVODI / STORITVE:

V Rettru razvijamo aplikacije in informacijske sisteme po meri naročnikov z najnovejšimi tehnologijami. Ponujamo razvoj mobilnih aplikacij, spletnih aplikacij, vgradnih sistemov kot tudi namiznih rešitev. Naši zaposleni so izkušeni razvijalci s poznavanjem širokega spektra tehnologij: JavaSE, JavaEE, Microsoft .NET, C, C++, C#, Scala, ReactJS, jQuery, JBoss in WebLogic aplikacijski strežnik, relacijske baze (Oracle, Postgres, MSSQL, MySQL), NoSQL baze (MongoDB, Cassandra, CosmosDB), Microsoft Azure, arhitektura mikroservisov in platforme (Kubernetes, Lagom, Spring/SpringBoot/SpringCloud, Rest API), Linux OS, itd.

*The **Rettro** company was founded in 2006 by Damir Erznožnik. The company had three employees between 2006 and 2009. The majority of work was supporting large companies by developing challenging and technically demanding projects. Additionally to providing services to large companies we developed web-based products and services applicable for mobile devices. Our key product is a comprehensive service platform offering web services for embedded mobile browsers. Three professional colleagues joined our team in 2010. Due to our very good work we gained a lot of new customers. In parallel we started developing our own IT-solution RETTRO LASER CAD/CAM, for which we received fundings from the JAPTI (Public Agency of the Republic of Slovenia for Entrepreneurship and Foreign Investments). We soon experienced that the office in Škofja Loka was no longer sufficient and we decided to move to new business premises in Ljubljana.*

PRODUCTS & SERVICES:

Additionally to providing services to large companies we developed web-based products and services applicable for mobile devices. Our key product is a comprehensive service platform offering web services for embedded mobile browsers.

We are developing customized applications and information systems with state-of-the-art technologies. We offer the development of mobile applications, web applications, embedded systems as well as desktop solutions. Our employees are experienced developers with knowledge of a wide range of technologies: JavaSE, JavaEE, Microsoft.NET, C, C++, C#, Scala, ReactJS, jQuery, JBoss and WebLogic application servers, Relational databases (Oracle, Postgres, MSSQL, MySQL), NoSQL databases (MongoDB, Cassandra, CosmosDB), microservices architectures and frameworks (Kubernetes, Lagom, Spring/SpringBoot/SpringCloud, Rest APIs), Linux OS, etc.

REVOZ d.d.



REVOZ podjetje za proizvodnjo in komercializacijo avtomobilov d.d.

Belokranjska cesta 4
8000 Novo mesto
Slovenija, EU

T: +386(0)7 331 50 00
F: +386(0)7 331 45 97
info.revoz@renault.com
www.revoz.si

CERTIFIKATI / CERTIFICATES:
ISO 9001
ISO 14001

Revoz je edini proizvajalec avtomobilov v Sloveniji. Podjetje, katerega lastnik je francoski Renault, je že vrsto let eden največji slovenskih izvoznikov. Tudi po prihodkih se uvršča v sam vrh slovenskih podjetij.

Tovarna Revoz je v celoti vključena v Renaultov industrijski sistem. Revoz je edina tovarna, v kateri nastaja uspešen Renaultov model Renault twingo, v okviru partnerstva z nemškim Daimlerjem pa tudi štirisedežni smart. Tretji model v proizvodnji je od leta 2017 dalje clio IV. Vsi trije modeli so namenjeni predvsem izvozu, saj v povprečju že 1-2 odstotka letne proizvodnje zadovoljijo potrebe domačega trga.

Z namenom zagotoviti odličnost poslovanja smo v Revozu že pred leti razvili sistem zagotavljanja kakovosti, ki ga zdaj le še potrjujemo v okviru rednih presoj ISO 9001. O ustreznosti ravnanja z okoljem ter o nenehnem prizadevanju za trajnostni razvoj pa priča že leta 1999 pridobljen certifikat ISO 14001.

PROIZVODI/STORITVE:

- avtomobili znamke Renault: Twingo, Clio;
- avtomobili znamke Smart: Smart ForFour.

***Revoz** is the only car manufacturer in Slovenia. The company is owned by the French Group Renault and it has held its position of one the biggest Slovenian exporter for several years. It ranks at the top of Slovenian companies by its revenues as well.*

The Revoz plant is entirely incorporated into the Renault industrial system. REVOZ is the only plant manufacturing two successful Renault models: the new Twingo and within the partnership with the German manufacturer Daimler - the Smart ForFour. Since 2017, the third model in the production line is Clio IV. All the products are mainly intended for the export, as 1-2 % of our yearly production meet the needs of the domestic market.

In order to ensure business excellence, Revoz developed a quality assurance system several years ago, which is today regularly confirmed by ISO 9002 audits. Revoz obtained the ISO 14001 certificate as early as in 1999, demonstrating the quality of its environmental management and continuous anticipation of sustainable development.

PRODUCTS & SERVICES:

- Renault brand models: Twingo, Clio;
- Smart brand models: Smart ForFour.

RLS d.o.o.



RLS d.o.o.
Pod vrbami 2
1218 Komenda
Slovenija, EU
01 5272 100
mail@rls.si
www.rls.si

CERTIFIKATI / CERTIFICATES:
ISO16949 Letter of Acceptance

Smo visokokotehnoško in razvojno naravnano mednarodno podjetje s 30-letno tradicijo na področju razvoja, izdelave in trženja magnetnih senzorjev pomika in zasuka. Najzaposlovalec 2017 in 2018, finalist izbora Zlate niti za najzaposlovalca 2022, najizvoznik 2016 in Slovenska gazela so priznanja, ki nas uvrščajo v sam vrh slovenskega gospodarstva. RLS je v partnerskem odnosu s podjetjem Renishaw, ki je dejavno zlasti na področjih metrologije, spektroskopije in medicine, in ki prek svoje obširne prodajne mreže prodaja magnetne dajalnike RLS in kupcem nudi podporo. Že od leta 1989 je naša misija odkrivati senzorske rešitve za rabo v različnih okoljih. Ne glede na to, ali gre za robotiko, elektromotorje, industrijsko avtomatizacijo, tiskalnike, orodjarstvo, medicino, industrijo obnovljivih virov, vesoljsko in podmorsko uporabo, naši dajalniki delujejo v še tako zahtevnih razmerah. Napredne senzorske rešitve nudimo na evropskih, ameriških in azijskih trgih ter sodelujemo z vodilnimi svetovnimi podjetji in blagovnimi znamkami iz različnih panog.

PROIZVODI / STORITVE:

Magnetni dajalniki pomika in zasuka.

RLS is the world-renowned developer and manufacturer of magnetic encoders for a wide range of industries. In more than 30 years, RLS has organically grown into a high-tech company with a strong R&D team, incisive marketing and a world-class supply chain. RLS is an associate company of Renishaw, a global company with core skills in metrology, motion control, healthcare, spectroscopy and manufacturing, which distributes and supports RLS magnetic encoders through an extensive global network.

Since 1989, RLS has been on a mission to make encoder solutions that are suitable for various applications and environments. Whether in robotics, electric motors, industrial automation, printing, machine tools, medical, green energy, aerospace or submarine applications, RLS encoders fulfil even the toughest requirements. RLS strives to deliver advanced sensor solutions for the European, American and Asian markets and works with world-leading companies and brands from various industries.

PRODUCTS & SERVICES:

Rotary and linear magnetic encoders.

Robotina d.o.o.



Robotina d.o.o.

OIC - Hrpelje 38
6240 Kozina
Slovenija, EU

+386(0)5 689 20 20
info@robotina.com
www.robotina.si

Robotina že skoraj 30 let uspešno deluje na področju avtomatizacije in v zadnjem obdobju tudi na področju digitalne transformacije.

Sprememba poslovnih modelov, ki jo prinaša industrija 4.0, kjer je vse povezana storitev zahteva od dobaviteljev opreme in storitev, da imajo pod neprestanim nadzorom (real time) ne le svoje proizvodne procese, ampak tudi svoje izdelke, ki jih ponujajo kot storitev. Robotina s svojim znanjem in izkušnjami pomaga svojim partnerjem pri vpeljavi procesov digitalne transformacije na vseh nivojih: od senzorjev na nivoju naprav, preko nadzornih sistemov (SCADA) do algoritmov umetne inteligence (ML, COS,...). Na ta način združujemo tako "operation technology" (OT), "information technology" (IT) in Industrial Internet Of Things (IIoT). Enostavno povedano krmilne sisteme povežemo v celoto in omogočamo lokalno ali daljinsko obvladovanje skozi celotno obdobje uporabe.

Z lastno tehnologijo lahko zagotovimo celovito rešitev, z znanjem in izkušnjami pa svojim partnerjem omogočamo zanesljive in dolgotrajne rešitve, ki jih je vedno možno nadgraditi in povezati z ostalimi sistemi. Tako poleg vrhunske opreme, zanesljive programske opreme in prilagojene rešitve, dobijo tudi najnižji možen strošek celotnega življenjskega cikla (Total Cost of Ownership).

Rešitve industrije 4.0. imamo v več industrijskih branžah, med drugim v prehrabi, procesni, predelovalni, metalurgiji, kemični industriji in strojogradnji. Poleg samih industrijskih procesov uvajamo tudi podporne, kot so upravljanje proizvodnih in poslovnih stavb, energetska učinkovitost, obnovljivi viri in sistemi za upravljanje z energijo. Zagotavljamo povezljivost na MES in ERP.

For almost 30 years, **Robotina** has been successfully working in the field of automation and recently also in the field of digital transformation.

The change of business models brought by industry 4.0, where all related services require suppliers of equipment and services to have, under real-time control, not only their production processes, but also their products that they offer as a service. Robotina with its knowledge and experience helps its partners to implement digital transformation processes at all levels: from device level sensors, SCADA to artificial intelligence algorithms (ML, COS,...). In this way we combine "operation technology" (OT), "information technology" (IT) and Industrial Internet Of Things (IIoT). Simply stated, the control systems are integrated into a whole and allow local or remote control over the entire period of use.

With our own technology we can provide a comprehensive solution. With our knowledge and experience, we provide our partners with reliable and long-lasting solutions, which can always be upgraded and connected with other systems. Thus, in addition to state-of-the-art equipment, reliable software and customized solutions, they also get the lowest possible cost of the Total Cost of Ownership.

Solutions Industry 4.0. we have in several industrial branches, including food, processing, metallurgy, chemical industry and machine building. In addition to the industrial processes itself, we also introduce supportive measures such as managing production and business buildings, energy efficiency, renewable resources and energy management systems. We provide connectivity to MES and ERP.

SAŠA INKUBATOR, družba za podjetniško in poslovno svetovanje, d.o.o.



SAŠA inkubator, d.o.o.

Šaleška c. 2a,
3320 Velenje

info@sasainkubator.si
<http://sasainkubator.si>

Saša inkubator je regionalni podjetniški inkubator, ki ustvarja podporno okolje za razvoj podjetništva v Savinjsko – Šaleški regiji. Poleg brezplačnih svetovanj, mentorskih programov, delavnic in družabnih večerov z uspešnimi podjetniki, smo razvili koncept treh ključnih stebrov SAŠA inkubatorja.

Za mlade dvakrat letno pripravljamo Startup dneve, katerih glavni cilj je skozi zabavo in sproščeno vzdušje odpirati vrata v svet kreativnega razmišljanja ter vitkega podjetništva. V spomladanskem terminu odpremo poziv za nove Startupe, ki se potegujejo za svoje mesto v ekskluzivnem šesttedenskem programu za razvoj podjetniške ideje – Startup generator. Dvanajstim izbranim ekipam tako omogočimo sodelovanje na 6 strukturiranih delavnicah z eksperti iz celotne Slovenije, vključitev v mentorski program in na koncu 6 najboljših ekip svojo idejo predstavi pred potencialnimi investitorji, podjetniki ter vabljenimi gosti. Ob izteku leta organiziramo mednarodno konferenco Future 4.0, ki je fokusno usmerjena na povezovanje večjih korporacij ter Startupov na področju industrije 4.0. in odprtega inoviranja. Startupom iz Slovenije in tujine odpiramo vrata do vrhunskih ter kvalitetnih vsebin ter jih povežemo s predstavniki industrijskih korporacij.

Ker se zavedamo pomembnosti osebne rasti podjetnika pri razvoju posla, smo vpeljali tudi niz vsebinskih srečanj BusinessMinds, namenjen osebnosti rasti, tehnikam in orodjem za sproščanje in meditacijo, ustvarjanju varnega podpornega okolja za osebne preboje.

PROIZVODI / STORITVE:

Izvajamo brezplačna svetovanja, mentorske programe, delavnice in družabne večere z uspešnimi podjetniki.

Poleg tega pa ustvarjamo tudi:

- Startup days
- Startup Generator
- Konferenca Future 4.0
- Business Minds delavnice

Saša incubator is a regional business incubator that creates a supportive environment for the development of entrepreneurship in the Savinjska – Šalek region. In addition to free counselling, mentoring programs, workshops, and social evenings with successful entrepreneurs, we have developed the concept of three key pillars of the SAŠA incubator.

For young people, we prepare Startup days, whose main goal is through fun and relaxed atmosphere to open the door to a world of creative thinking and lean entrepreneurship. In the spring we open a call for new Startups competing for their place in an exclusive six-week program for the development of entrepreneurial idea – Startup generator. We enable the twelve selected teams to participate in 6 structured workshops with experts from all over Slovenia, to participate in the mentoring programme and finally to present the 6 best teams with their idea in front of potential investors, entrepreneurs and invited guests. At the end of the year we organize the International Conference Future 4.0, which focuses on connecting major corporations and Startups in the field of industry 4.0. and open innovation. We open the door to top quality and quality content for startups from Slovenia and abroad and connect them with representatives of industrial corporations. As we are aware of the importance of the personal growth of the pdojet in the development of the business, we have also introduced a series of meetings BusinessMinds, dedicated to personal growth, relaxation and meditation techniques and tools to create a safe support environment for personal breakthroughs.

PRODUCTS & SERVICES:

We perform free counselling, mentoring programs, workshops, and social evenings with successful entrepreneurs.

In addition, we also create:

- Startup days
- Startup Generator
- Future Conference 4.0
- Business Minds workshops

SCAN, zastopniško servisno podjetje d.o.o., Preddvor

scan

VODILNI TEHNIČNO
USPOSOBLJENI SPECIALISTI

vakuum
kriotehnika
elektronska mikroskopija



Naša obljuba je naša zaveza.
Our promise is our commitment.

Podjetje **Scan** je predstavnik in pooblaščen servis vodilnih svetovnih proizvajalcev s področja elektronske mikroskopije, vakuum in kriotehnike (Pfeiffer Vacuum, JEOL, Cryopal, Oxford instruments, Quorum, RMC, SPI, VAT AG, HSR AG). Svojim strankam zagotavljajo polno podporo.

Proizvode s področja elektronske mikroskopije in spektrometrije si lahko ogledate na: www.jeol.com, www.oxfordnanoanalysis.com, s področja vakuum na www.pfeiffer.vacuum.com, www.vatvalve.com, www.hsr.li, s področja kriotehnike www.cryopal.com.

Še naprej bodo stremeli k zagotavljanju delovanja visokotehnološke opreme, z mislijo na energijsko in okoljsko sprejemljive rešitve.

PROIZVODI / STORITVE:

- Elektronski mikroskopi, spektrometri,
- vakuumski sistemi, črpalke, merilniki, ventili in komponente,
- dewar posode, instrumenti za pripravo vzorcev.
- Vzdrževanje in popravila opreme,
- razvoj dodatkov,
- detekcija netesnosti,
- obnova dewar posod,
- izposoja opreme.

Scan is a representative and service provider of the world-leading producers from the field of electron microscopy, vacuum and cryotechnology (Pfeiffer Vacuum, JEOL, Cryopal, Oxford instruments, RMC, SPI, VAT AG, HSR AG). They assure full support to its customers.

You can view through the products from the field of microscopy and spectroscopy on: www.jeol.com, www.oxfordnanoanalysis.com, from the field of vacuum technology: www.pfeiffer.vacuum.com, www.vatvalve.com, www.hsr.li, and from the field of cryotechnics www.cryopal.com.

They will continue to strive to assure up-time for high tech equipment with energy and environmentally acceptable solutions in mind.

PRODUCTS & SERVICES:

- Electron microscopes, spectrometers,
- vacuum systems, pumps, gauges, valves and components,
- dewar containers, sample preparation instruments.
- Maintenance and equipment repair,
- accessories development,
- leak detection,
- dewar containers refurbishment,
- equipment rental.

SICK, družba za trgovino z optično-elektronskimi napravami vseh vrst d.o.o.

SICK
Sensor Intelligence.



SICK d.o.o.

Cesta v Gorice 34b
1000 Ljubljana
Slovenija, EU

T: +386 59178849

F: +386 59132593

office@sick.si

www.sick.com/de/en

SICK je eden vodilnih svetovnih ponudnikov rešitev za senzorske aplikacije v industrijskem sektorju. Podjetje s sedežem v Waldkirch im Breisgau je leta 1946 ustanovil Dr.-Ing. e. h. Erwin Sick. SICK ima več kot 11.000 zaposlenih po vsem svetu in prihodke skupine okoli 2 milijardi EUR.

Industrijska avtomatizacija se spreminja izjemno hitro. Kot vodilni na področju inovacij na čelu razvoja najsodobnejše senzorske tehnologije SICK danes ponuja rešitve, ki so pripravljene na izzive prihodnosti – z inteligentnimi senzorji, ki zbirajo podatke, jih vrednotijo v realnem času, se prilagajajo svojemu okolju in komunicirajo v omrežje.

Kibernetski fizični proizvodni sistemi v pametnih tovarnah prihodnosti se bodo organizirali sami z uporabo ogromnih količin posodobljenih informacij za sprejemanje neodvisnih odločitev. Te informacije zagotavljajo naši senzorji.

S »**Sensor Intelligence**« uresničujemo industrijo 4.0 – in to počnemo že danes.

PROIZVODI / STORITVE:

Širok nabor senzorjev za avtomatizacijo tovarn, logistike in procesov. Prilagojene rešitve in storitve za zaznavanje, merjenje, zaščito, identifikacijo, določanje položaja, povezovanje in integracijo, spremljanje in nadzor.

***SICK** is one of the world's leading solutions providers for sensor-based applications in the industrial sector. Founded in 1946 by Dr.-Ing. e. h. Erwin Sick, the company with headquarters in Waldkirch im Breisgau ranks among the technological market leaders. SICK has more than 11,000 employees worldwide and group revenue of around EUR 2 billion.*

Industrial automation is changing at an extremely rapid pace. As an innovation leader in the vanguard of developing cutting-edge sensor technology, SICK offers solutions today that are ready for the challenges of the future – with intelligent sensors that collect data, evaluate it in real time, adapt to their environment, and communicate in the network.

The cyber-physical production systems in the smart factories of the future will organize themselves, using huge amounts of up-to-date information to make independent decisions. This information is provided by our sensors.

*With "**Sensor Intelligence**," we are making Industry 4.0 a reality – and we are doing it today.*

PRODUCTS & SERVICES:

Wide range of sensors for factory, logistics, and process automation. Customized solutions and services for detecting, measuring, protecting, identification, position determination, networking and integration, monitoring, and controlling.

SMM proizvodni sistemi, d.o.o.



SMM proizvodni sistemi, d.o.o.

Jaskova 18
2000 Maribor
Slovenija, EU

+386(0)2 450 23 00
info@smm.si
www.smm.si

CERTIFIKATI / CERTIFICATES:

ISO 9001:2015 (certificirano / certified in 1997)
ISO 14001:2015 (certificirano / certified in 2003)
ISO 18001:2007 (certificirano / certified in 2006)

Družba **SMM d.o.o.** razvija program in poslovni koncept, ki omogoča naslavljanje težjih nalog v proizvodnji v različnih industrijah povsod po svetu. V sodelovanju z uporabniki izvajamo projekte „na ključ“, ki zajemajo strojništvo, avtomatizacijo in informatiko.

Uspešno izpolnjevanje pričakovanj naših partnerjev zagotavljajo z izkušnjami, znanjem in razvojno energijo več kot sto strokovnjakov na področju mehatronike ter programskih rešitev.

Izvajamo projekte s področja proizvodnih sistemov. Princip modularne gradnje nam omogoča izvajanje projektov na osnovi lastne dokumentacije in vključevanje proizvodov svetovnih proizvajalcev ter s tem fleksibilnost pri izbiri najustreznejših rešitev.

V podjetju SMM d.o.o. poskrbimo za izvedbo vseh življenjskih faz naših produktov. Začne se z načrtovanjem, ki poteka v sodelovanju z naročnikom. Nato izdelek razvijemo ter naročnikom pomagamo pri izvajanju in uporabi. Poskrbimo za podaljševanje uporabnosti, saj izdelke servisiramo in jih po potrebi moderniziramo. Po odsluženem življenjskem obdobju izvedemo še reciklažo.

Sami izvajamo poslovni in programski razvoj. V sodelovanju z našimi naročniki in uporabniki storitev izvajamo tudi zaključene projekte (t.i. „projekti na ključ“) s področja strojništva, avtomatizacije in informatike. S pridobljenim znanjem in izkušnjami ter prilagodljivostjo in razvojno energijo uspešno izpolnjujemo še tako visoka pričakovanja.

V skladu z razvojnim konceptom smo oblikovali prodajni program, prilagojen zahtevam trga: 70 % inženiring (lastna dokumentacija), 20 % storitve (naročnikova dokumentacija), 10 % prodaja (proizvodi partnerjev).

SMM Ltd. independently implements the business and program development. In cooperation with our partners and customers, we produce finished, ready-to-use products and projects from the field of mechanical engineering, automation and informatics.

Our experience, knowledge, development power and adaptability allow us to successfully fulfill the expectations of our clients.

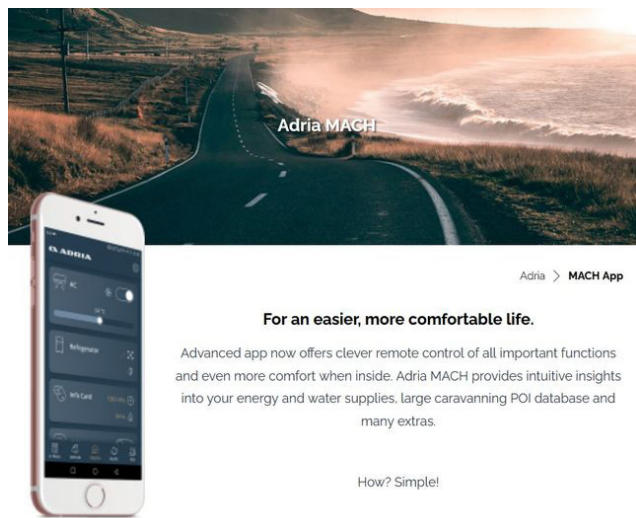
Our company implements various projects in the field of production systems. Our method of modular construction allows us to complete projects, based on our own documentation. Often, we include components of world-renowned companies, which results in the most flexible and appropriate solutions.

At SMM d.o.o., we are proud to be able to see our projects through all life cycles. The production starts at the drawing board, where we plan our products with the client's input. Later, we develop and build the product and provide our client with valuable support (setup, adjustments, personnel training).

We always offer our customers the best possible experience and production efficiency by servicing our products and upgrading them, if necessary. After our products are worn out and obsolete, we also arrange the recycling and safe disposal. We provide both the operation and program development. In collaboration with our customers and service users, we also prepare finalized projects in the fields of mechanical engineering, automation and information technology. With the obtained knowledge, experience, flexibility and development energy, we successfully comply the toughest criteria and expectations.

In accordance with our development concept, our product range is specially tailored to the market's needs: 70 % engineering (own documentation), 20 % services (customer's documentation), 10 % representation (partner's products)

Solvesall Labs d. o. o.



SOLVESALL D.O.O.

Tržaška cesta 47
1000 Ljubljana

Fotografija predstavlja enega izmed produktov – MACH aplikacija.

Podjetje **Solvesall d.o.o.** se ukvarja z razvojem naprednih rešitev na področjih mobilnosti, logistike, transporta, karavaninga ter razvoja programske opreme po meri. Njihove dejavnosti vključujejo analizo in optimizacijo logističnih procesov, razvoj sistemov za pametna avtodome in mobilne hišice ter razvoj umetne inteligence za različne industrijske aplikacije. Med drugim ponujajo optimizacijo voznih redov, distribucijo tovora in upravljanje z baterijami prek IoT sistemov.

PROIZVODI / STORITVE:

Pametni avtodomi (Smart RVs):

Razvoj naprednih programsko-strojnih sistemov za avtodome in mobilne hišice, ki omogočajo spremljanje, daljinsko upravljanje, sledenje in dodatne storitve za uporabnike. Ti sistemi so prilagodljivi in omogočajo dodajanje novih funkcionalnosti po želji uporabnika.

Logistična optimizacija:

Analiza in optimizacija voznih redov, distribucija tovora, optimizacija dobavne verige in izdelava prilagojenih algoritmov za optimizacijo proizvodnih naročil in umestitev..

Razvrščanje HS kod (HS Code Classifier):

Inteligenten sistem za samodejno razvrščanje opisov proizvodov in harmoniziranih sistemskih kod z 98 % natančnostjo v manj kot dveh sekundah. Sistem je prilagodljiv za integracijo v različne procese.

*The company **Solvesall d.o.o.** is engaged in developing advanced solutions in the fields of mobility, logistics, transport, caravanning, and custom software development. Their activities include the analysis and optimization of logistical processes, the development of systems for smart motorhomes and mobile homes, and the development of artificial intelligence for various industrial applications. Among other things, they offer schedule optimization, cargo distribution, and battery management through IoT systems.*

PRODUCTS & SERVICES:

Smart RVs:

Development of advanced software and hardware systems for recreational vehicles and mobile homes. These systems allow for monitoring, remote control, tracking, and additional useful services for users. The functionalities are flexible and can be updated with any imaginable feature later.

Logistics Optimization:

Analysis and optimization of vehicle fleets, shipments, rates, and constraints to produce realistic load plans and vehicle optimizations. This includes route optimization, cargo distribution optimization, supply chain optimization, custom optimization algorithms, and production order and placement optimization.

Optimizacija baterij (All Battery):

Optimizacija zmogljivosti, varnosti in življenjske dobe baterij preko spremljanja v realnem času in naprednih algoritmov. Vključuje IoT mobilne aplikacije za končne uporabnike, posodobitve programske opreme in analizo podatkov v oblaku.

MACH aplikacija:

Aplikacija za mobilne naprave, ki uporabnikom omogoča upravljanje ključnih funkcij avtodoma, kot so osvetlitev, ogrevanje, hlajenje, stanje baterije, voda, plin in hladilnik. Aplikacija vključuje tudi navigacijo in podatkovno bazo kampov, restavracij in drugih pomembnih točk.

HS Code Classifier:

An intelligent, AI-based system for automatically matching product descriptions with Harmonized System (HS) codes. This service offers 98% accuracy in under two seconds and includes flexible integration options for minimizing costs and optimizing distribution.

Battery Optimization:

Optimization of battery performance, safety, and lifespan through real-time monitoring and advanced algorithms. This includes IoT mobile apps for end users, firmware updates, and cloud-based analytics.

MACH App:

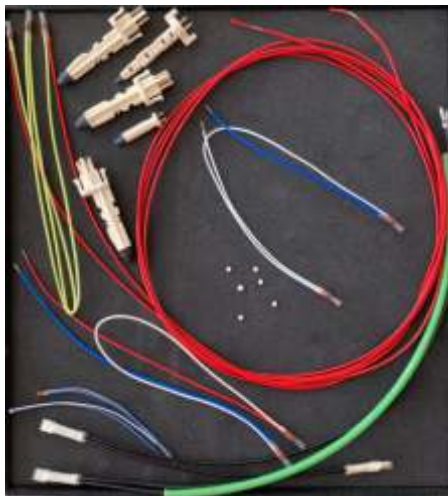
A mobile application for managing key functions of motorhomes, such as lighting, heating, cooling, battery status, water, gas, and refrigerator. The app also includes navigation and a database of campsites, restaurants, and other points of interest.



STELEM d. o. o. Žužemberk



Nelinearni keramični upori



PTC temperaturni senzori

**STELEM d.o.o. podjetje za proizvodnjo,
trgovino in promet**

Grajski trg 15
8360 Žužemberk
Slovenija, EU

+386(0)7 388 53 51
info@stelem.si

STELEM d.o.o. Žužemberk se nahaja v idiličnem okolju na bregovih reke Krke, kjer delujemo že od leta 1992.

Smo eno redkih podjetij v Evropi za proizvodnjo PTC keramičnih komponent, ki se uporabljajo kot samoregulirni električni grelni elementi, temperaturni senzori, omejitelji električnega toka idr. Vgrajujejo se v elektronske sklope in naprave.

Naša strategija sloni na dolgoročnem razvojnem, mnogokrat ekskluzivnem povezovanju z našimi kupci ter razvoju kompetenc in motiviranosti naših zaposlenih. Pri tem stremimo k čim manjšemu obremenjevanju okolja.

Smo zanesljiv razvojni partner.

Stalne izboljšave naših procesov slonijo na vedno večjih zahtevah naših kupcev in potrebah po izboljševanju delovnih pogojev naših zaposlenih. Podjetje se nenehno prilagaja tržnim razmeram, kar je tudi ena naših strateških prednosti.

Naši kupci prihajajo iz avtomobilske industrije, s področij industrijske elektronike, elektroenergetike, bele tehnike, regulacijske tehnike in medicinske tehnike. Večino prodaje opravimo na evropskem trgu.

PROIZVODI / STORITVE:

- nelinearni keramični upori s pozitivnim temperaturnim koeficientom (PTC),
- PTC temperaturni senzori,
- skozni keramični kondenzatorji in filtri.

STELEM d.o.o. Žužemberk is located in an idyllic setting on the banks of the Krka River, where we have been operating since 1992.

We are one of the few companies in Europe to manufacture PTC ceramic components that are used as self-regulating electrical heating elements, temperature sensors, and integrated into electronic assemblies and devices.

Our strategy is based on long-term strategic and development, many times as exclusive supplier to our customers, as well as on the development of competencies and motivation of our employees. We strive to minimize the environmental burden.

We are a reliable development partner.

Continuous improvements to our processes are driven by the increasing demands of our customers and the need to improve the working conditions of our employees.

Our constant adjusting to market conditions, is one of our strategic strengths.

Our customers come from the automotive industry, in the areas of industrial electronics, power engineering, white goods, regulatory techniques and medical technology. Most of our products are sold on the European market.

PRODUCTS & SERVICES:

- self-regulating PTC heating elements,
- PTC temperature sensors,
- feed through ceramic capacitors and filters.

Talum Tovarna aluminija d.d. Kidričevo



Talum Tovarna aluminija d.d. Kidričevo

Tovarniška cesta 10
2325 Kidričevo
Slovenija, EU

+386(0)2 799 51 00
www.talum.si

Talum je sodobno podjetje, ki se že 65 let ukvarja s proizvodnjo aluminija. V tem času je postalo eno najbolj učinkovitih proizvajalcev primarnega aluminija, aluminijevih zlitin, največji evropski proizvajalec rondelic ter razvojni dobavitelj ulitkov avtomobilski industriji. Uvršča se med 10 največjih slovenskih izvoznih podjetij. Rast in konkurenčnost zagotavlja vlaganje v razvoj najsodobnejših tehnologij, orodjarstvo ter lasten inženiring, ki uvaja napredne in inovativne tehnološke rešitve za proizvodnjo dovršenih aluminijevih izdelkov. Talumov strateški cilj je doseganje višje dodane vrednosti svojih produktov z inovativnostjo in razvojnimi partnerstvi. To dosega z nenehnim uvajanjem sodobnih metod in postopkov vodenja proizvodnih procesov ter z visoko stopnjo avtomatizacije in robotizacije.

Talum se vedno bolj uveljavlja tudi kot ponudnik različnih storitev od katerih je v ospredju trženje lastnih proizvodnih naprav in tehnoloških rešitev za proizvodnjo in predelavo aluminija.

PROIZVODI / STORITVE:

- proizvodnja aluminija,
- strojegradnja,
- industrijska in procesna avtomatizacija,
- robotizacija.

CERTIFIKATI:

ISO 9001:2015 Quality systems
ISO 14001:2015 Environmental management
OHSAS 18001:2007 Health and Safety Systems
IATF 16949 Quality systems in automotive
EN 1090-1:2007 Components for Steel Construction

Talum is a modern aluminum production company, with 65 years of tradition. It is one of the most efficient manufacturers of primary aluminum, aluminum alloys, Europe's leader in slugs production and a development supplier of the castings parts for automotive industry. Talum is ranked among the 10 largest Slovenian export companies. Growth and competitiveness are ensured by investing in development state-of-the-art technologies and competent engineering group, which introduces advanced and innovative technological solutions for the manufacturing of aluminium products. Talum's strategic goal is increasing the added value of its products through innovation and development partnerships. It achieves this by constantly introducing of modern methods of process control and by a high degree of automation and robotization.

Talum is also positioning in market as a provider of various services, focusing offer the own machinery and technological solutions for aluminum industry.

PRODUCTS & SERVICES:

- aluminium production,
- machine building,
- industrial and process automation,
- robotisation.

CERTIFICATES:

ISO 9001:2015 Quality systems
ISO 14001:2015 Environmental management
OHSAS 18001:2007 Health and Safety Systems
IATF 16949 Quality systems in automotive
EN 1090-1:2007 Components for Steel Construction

Telem d.o.o.



TELEM inženiring, avtomatizacija, zastopstva d.o.o.

V borovju 8
2000 Maribor
Slovenija, EU

T: +386(0)2 228 44 11

F: +386(0)2 228 44 20

telem@telem.si

www.telem.si

CERTIFIKATI / CERTIFICATES

ISO 9001

IZS - ID-0414

R&D ID-2325

Siemens partner, Schneider Electric partner, KNX partner



Osnovna dejavnost podjetja **Telem d.o.o.** je inženiring in avtomatizacija sistemov v sledečih panogah:

- procesna industrija (papirna, kemična, avtomobilska, gradbena, metalurška, farmacevtska, prehrabena ...),
- ekologija (čistilne naprave, sortiranje odpadkov, filtracije in čiščenje zraka ...),
- energetika (hidro, biomasa, kogeneracija, naftna&plin, nuklearna),
- infrastruktura (smučarske naprave, komunikacije, logistika),
- avtomatizacija zgradb (pametne zgradbe, HVAC, toplotne postaje, temperatura, vlaga ...),
- e-mobilnost (polnilne postaje, integracija in pametna poraba,...).
- R&D (RRI projekti ...).

Zastopstva: Solution partner Siemens, Schneider Electric, KNX, Rittmeyer, Abitron

PROIZVODI / STORITVE:

- elektro projekti od ideje, izvedbe do zagona,
- avtomatizacija tehnoloških sistemov,
- IKT – HW&SW, aplikacije,
- elektro oprema (PLC, HMI, SCADA, pogonski sistemi, strojni vid, procesno merilna oprema...),
- pametne zgradbe, E-mobilnost,
- R&D projekti.

*The core business of company **Telem d.o.o.** is the engineering and system automation of the following industries:*

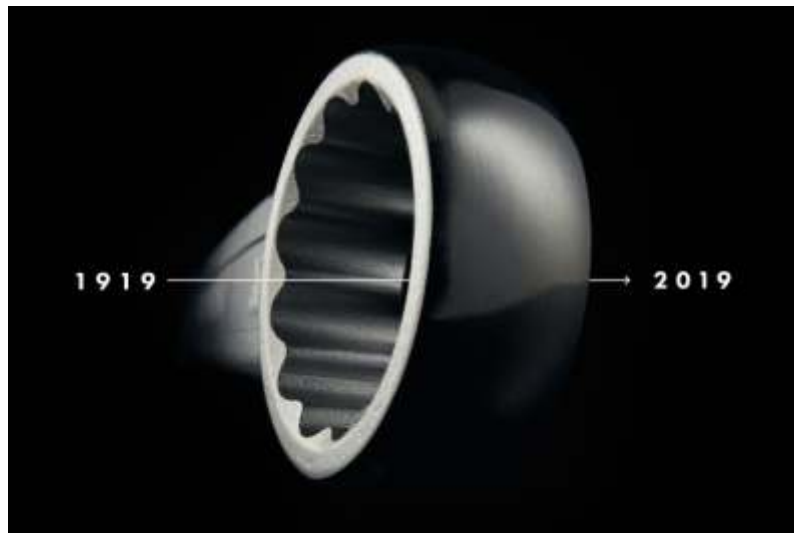
- *Process industry (Paper, Chemical, Automotive, Construction, Metallurgical, Pharmaceutical, Food and Beverage),*
- *Ecology (Waste treatment, Waste sorting, filtration and air purification),*
- *Energetics (Hydro, Biomass, Cogeneration, Oil & Gas, Nuclear),*
- *Infrastructure (Ropeways, communication solutions, logistic solutions),*
- *Building automation (smart buildings, HVAC, heat stations, temperature, humidity...),*
- *E-mobility (Charging stations, Integration, and Smart power consumption).*

Representations: Solution partner Siemens, Schneider Electric, KNX, Rittmeyer, Abitron

PRODUCTS & SERVICES:

- *electrical projects from idea, performance to start up,*
- *automation of technological systems,*
- *ICT - HW&SW, applications,*
- *electrical equipment (PLC, HMI, SCADA, drive systems, machine vision, process measuring equipment...),*
- *smart buildings, E-mobility,*
- *R&D projects.*

UNIOR d.d.



UNIOR Kovaška industrija d.d.

Kovaška cesta 10
3214 Zreče
Slovenija, EU

T: +386(0)3 757 81 00

F: +386(0)3 756 21 03

vojko.leskovar@unior.com

www.unior.si

www.uniortools.com

CERTIFIKATI / CERTIFICATES:

ISO 9001, ISO 14001,
QS 9000, ISO/TS 16949, ATF 16949, VDA 6.4,
OHSAS 18001,
IEC 60900, GOST PCT, CE,

Tisočletja učenja in izkušenj so botrovala uradnemu začetku in nadaljnjemu razvoju podjetja Unior. Leta 1919 bila ustanovljena Štajerska železno industrijska družba z omejeno zavezo, krajše Štajerska Zreče. Sedanje ime, ki je skovanka besedne zveze **UN**iverzalno **OR**odje, je podjetje dobilo v 70. letih prejšnjega stoletja.

Danes večino izdelkov, kar 95%, izvozimo. V zadnjih tridesetih letih razvoja smo se uveljavili kot pomemben razvojni partner evropske avtomobilske industrije. Uvrščamo se med pet največjih slovenskih proizvajalcev, po številu zaposlenih pa med deset največjih slovenskih podjetij.

Za ojnice in dele krmilnih mehanizmov za avtomobilsko industrijo smo ena največjih kovačnic v Evropi in največji svetovni proizvajalec odkovkov za krmilne mehanizme osebnih vozil. Kar štirje od petih avtomobilov v Evropi imajo vgrajen vsaj en del, narejen v Uniorju.

Sodimo v sam vrh, med pet najpomembnejših evropskih proizvajalcev ročnega orodja, katerega razvoj usmerjamo k specialističnim rešitvam. Posebno ponosni smo na proizvodno linijo kolesarskega orodja, s katero stojimo na samem svetovnem vrhu. Postali smo globalno prepoznaven proizvajalec namenskih obdelovalnih strojev CNC za serijsko obdelavo jeklenih ali aluminijastih odlitkov ter odkovkov.

Na različnih področjih delovanja smo uvedli ugledne certificirane sisteme: ISO 9001 in ISO 14001 (sistem vodenja kakovosti), QS 9000, ISO/TS 16949 in ATF 16949 (za program Odkovki), VDA 6.4 (za program Strojna oprema), OHSAS 18001 (sistem vodenja varnosti in zdravja pri delu).

Pridobili smo tudi pomembna potrdila o ustreznosti naših izdelkov in storitev: IEC 60900 (za orodje za delo pod visoko napetostjo), GOST PCT (za ustreznost ročnega orodja), CE (oznaka o skladnosti za stroje), potrdilo o uvedenem sistemu po zahtevah HACCP, osnovni certifikat Družini prijazno podjetje.

Several thousand years of know-how led to the official founding and further development of Unior whose beginnings date back to as early as 1919 when the limited-liability Styrian Iron Industrial Company was established. The current name, which is coined from the "UNIverzalno ORodje" (UNIOR - Universal Tools) phrase, dates back to the 1970s.

Today, the majority of products, as many as 95%, are exported. During the last 30 years of development, we have established ourselves as an important partner of the European automotive industry. We are one of the five biggest Slovenian manufacturers and one of the top ten employers in Slovenia.

We have become one of the largest European forges of connecting rods for engines and forged elements of steering mechanisms and chases used in passenger cars. Four out of five cars in Europe contain at least one Unior-produced part. We are one of the top 5 European producers of hand tools whose development is focused on specialised solutions. We are especially proud of the production line of our biking tools which is one of the best in the world. We have become a globally renowned producer of CNC special-purpose machine tools for serial machining of steel and aluminium castings and forgings. We strive for state-of-the-art solutions in all aspects and also seek to efficiently control our quality. For this reason, we have introduced renowned certification systems in various areas of our operation: ISO 9001 and ISO 14001 (Quality Management System), QS 9000, ISO/TS 16949 and ATF (for the Forge Programme), VDA 6.4 (for the Special Machines Programme), OHSAS 1800 (occupational safety and health management system). We have received important certificates on compliance of our products and services: IEC 60900 (for tools used for working at high voltage), GOST PCT (hand tools approval certificate), CE (conformity of machinery), Certificate on the introduction of a system compliant with the HACCP requirements, basic certificate Family Friendly Company.

Vacutech d.o.o.



Vacutech d.o.o.

Teslova 30
1000 Ljubljana
Slovenija, EU

T: +386(0)1 477 66 55
info@vacutech.si
www.vacutech.si

Vacutech je vodilno slovensko podjetje v proizvodnji vakuumskih sistemov in komponent. Imajo več kot 30 let izkušenj na področju razvoja in izdelave vakuumskih sistemov po meri, izdelave specialnih komponent iz nerjavnega jekla ter specialnega varjenja komponent iz nerjavnega jekla. Proizvajajo širok nabor vakuumskih komponent kot so vakuumске prirobnice, prevodnice in priključki, kotni in ploščni ventili, membranske ter oljne difuzijske črpalke, HV in UHV komore.

PROIZVODI/STORITVE:

- Razvoj in izdelava vakuumskih sistemov za uporabo v industrijskih in razvojno-raziskovalnih aplikacijah
- Razvoj in izdelava vakuumskih komponent
- Svetovanje na področju vakuumskih sistemov, komponent in aplikacij
- Vgradnja in servis vakuumске opreme
- Izdelava specialnih komponent iz nerjavnega jekla

Vacutech is the leading Slovenian company in production of vacuum systems and components. The company experts have over 30 years of experience in the field of development and production of custom-designed vacuum systems, production of custom products made of stainless steel, precision welding of stainless steel components and production of special custom designed metal components. Their products include a wide range of vacuum components including vacuum flanges, fittings and feedthroughs, angle and gate valves, membrane pumps, oil diffusion pumps, HV and UHV chambers.

PRODUCTS & SERVICES:

- Custom design and production of vacuum systems for industrial and R&D applications
- Development and production of vacuum components
- Consulting in the area of vacuum systems, components and applications
- Installation and service of vacuum equipment
- Production of special stainless steel components

YASKAWA Slovenija d.o.o.

YASKAWA



YASKAWA Slovenija d.o.o.

Lepovče 23
1310 Ribnica
Slovenija, EU

T: +386(0)1 837 24 10

F: +386(0)1 836 12 43

info@yaskawa.eu

www.yaskawa.si

Podjetje **Yaskawa** je v Sloveniji proizvajalec in sistemski dobavitelj robotike in avtomatizacije delovnih procesov v industriji. Izdeluje sistemske in specialne aplikacije z roboti Motoman japonskega podjetja Yaskawa. Smo podjetje, ki ima 25 let izkušenj delovanja na trgu Slovenije in držav bivše Jugoslavije s široko paleto implementiranih rešitev na različnih področjih avtomatizacije, kot so: varjenje, montaža, strega strojev, preoblikovanje izdelkov, odstranjevanje in nanašanje materialov, pakiranje, t.i. pick&place operacije, paletiranje... Smo podjetje, ki dosega dvakrat višjo donosnost kapitala in prihodke na zaposlenega, kot panoga. Že danes izvozi 91 odstotkov proizvodnje in širi prodajo tako na evropskih, azijskih in ameriških trgih. Ob novih tržnih priložnostih na področju bio-medicine zagotavlja dolgoročno razvojno strategijo lastna registrirana razvojna skupina, ki v sodelovanju s fakultetami in inštituti razvija številne produkte in tehnološke modele.

Podjetje je del korporacije Yaskawa Electric Corporation, vodilnega proizvajalca na področju robotike, ki letno proizvede več kot 47 000 industrijskih robotov, ima skupno inštaliranih več kot 600 000 industrijskih robotov, 25 milijonov servomotorjev in 35 milijonov inverterjev, ki so vključeni v različne proizvodne procese. Razvija tehnološke rešitve na področju avtomobilske industrije, bele tehnike, kovinsko-predelovalne in livarske industrije, prehranske industrije, gradbeništva, pohištvene industrije, medicine in kozmetike.

The Yaskawa company in Slovenia is a producer of robots and system supplier of robotics and automation of work processes in the industry. It manufactures system and special applications with Motoman robots, which are being produced by a Japanese company Yaskawa. We are a company with 25 years of experience in the market of Slovenia and countries of the former Yugoslavia with a wide range of implemented solutions in various fields of automation, such as, welding, assembly, machine operating, product transformation, removal and application of materials, packaging, i.e. pick&place operations, pallet-stacking etc. We are a company that achieves twice the return on capital and income per employee in comparison with other companies in the industry. It exports as much as 91 percent of its production and is expanding its sales to European, Asian and American markets. In addition to new market opportunities in bio-medicine, a long-term development strategy is provided by its own registered development group, which, in cooperation with faculties and institutes, develops numerous new product and technology models.

The company is part of the Yaskawa Electric Corporation, a leading robotics manufacturer that produces more than 47,000 industrial robots annually and has over 600,000 industrial robots, 25 million servomotors and 35 million inverter involved in various production processes. It is engaged in developing technological solutions for the automotive industry, white goods, metal processing and casting industry, food industry, construction, furniture industry, medicine and cosmetics.



Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič



Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič

ČLANI SRIPToP - INSTITUCIJE / *SRIPFoF MEMBERS - INSTITUTIONS*

74	Fakulteta za varstvo okolja
76	GZS – Zbornica elektroindustrije
78	GZS – Združenje kemijske industrije
79	IJS, Odsek za avtomatiko, biokibernetiko in robotiko – E1
80	IJS, Odsek za sisteme in vodenje – E2
81	IJS, Odsek za umetno inteligenco – E3
82	IJS, Odsek Računalniški sistemi – E7
83	IJS, Odsek za tehnologije znanja – E8
84	IJS, Odsek za fiziko nizkih in srednjih energij – F2
85	IJS, Odsek za tanke plasti in površine – F3
86	IJS, Odsek za tehnologijo površin – F4
87	IJS, Odsek za elektronsko keramiko – K5
88	IJS, Nanostrukturni materiali – K7
89	IJS, Odsek za raziskave sodobnih materialov – K9
90	IJS, Odsek za znanost o okolju – O2
91	Kemijski inštitut – Odsek za katalizo in reakcijsko inženirstvo
93	Kulturno izobraževalno društvo PINA
94	Mednarodna podiplomska šola Jožefa Stefana
95	Podjetniški inkubator Kočevje
96	Rudolfovo – Znanstveno in tehnološko središče Novo mesto
98	SLOVENSKI INSTITUT ZA KAKOVOST IN MEROSLOVJE, Ljubljana
99	SLOVENSKI INŠTITUT ZA STANDARDIZACIJO
100	Šolski center Škofja Loka
101	ŠTAJERSKA GOSPODARSKA ZBORNICA
103	UL, FS, Laboratorij za alternativne tehnologije
105	UM, FS, Laboratorij za načrtovanje proizvodnih sistemov
106	Zavod C – TCS Celje
107	TECOS
108	UL, FE, Laboratorij LAK
109	UL, FE, Laboratorij za strojno inteligenco
110	UL, FE, Laboratorij za robotiko Robolab
111	UL, FRI, LUVSS
112	UL, FS
113	UL, FS – Laboratorij LASIM
114	UL, FS, Laboratorij FOLAS
115	UL, FS, Laboratorij LASTEh
116	UL, FS, Laboratorij LAMPA
117	UM – Inštitut za robotiko
118	UM – Inštitut za avtomatiko
119	Zavod KC STV

Fakulteta za varstvo okolja



Fakulteta za varstvo okolja
Faculty of Environmental Protection

Trg mladosti 7, 3320 Velenje

Info@fvo.si

www.fvo.si

+386 (0)3 898 64 10

Zajem vzorcev za merjenje količine mikroplastičnih delcev v vodnih telesih z napravo, ki je plod lastnega razvoja

FAKULTETA ZA VARSTVO OKOLJA – VAŠ PARTNER PRI TRAJNOSTNEM RAZVOJU

Fakulteta za varstvo okolja (FVO) s sedežem v Velenju je visokošolski zavod v Sloveniji, ki interdisciplinarno deluje na področju okoljevarstvenih ved. Poleg kakovostnega izobraževanja se ponaša tudi z bogato znanstveno-raziskovalno in strokovno dejavnostjo. Z rezultati številnih mednarodnih in domačih projektov ter pridobljenimi novimi zagotavlja praktične rešitve za končne uporabnike in lokalne skupnosti.

V zadnjih letih je FVO strokovno dejavnost razširila na področja, kot so priprava okoljskih ekspertiz, občinskih programov varstva okolja, okoljskih poročil, presoj vplivov na okolje, različnih monitoringov, ravnanja z odpadki in projektov za regionalne akcijske skupnosti. Postala je vodilna slovenska institucija za izračun vplivov na okolje (LCA analize, ogljični odtis) in nudi svetovanja pri razvoju okolju prijaznih izdelkov, tehnologij in sistemov. Posebno pozornost namenjamo tudi raziskavam mikroplastike v okolju in iskanju inovativnih rešitev za njeno problematiko. Pomemben del delovanja ostaja trajnostno upravljanje populacij prostoživečih živali. Na področju preprečevanja trkov vozil z velikimi sesalci ter zmanjševanja konfliktov med ljudmi in divjadjo smo vodilna institucija v Sloveniji in širši evropski.

Z močno znanstveno osnovo in praktičnimi izkušnjami FVO ostaja ključni partner v razvoju okoljsko trajnostnih rešitev, ki prispevajo k bolj zeleni in trajnostni prihodnosti.

FACULTY OF ENVIRONMENTAL PROTECTION - YOUR PARTNER IN SUSTAINABLE DEVELOPMENT

The Faculty of Environmental Protection (FEP), based in Velenje, is the higher education institution in Slovenia with interdisciplinary activities in the field of environmental sciences. In addition to high quality education, it has a rich scientific research and professional activity. The results of numerous international and national projects and the new knowledge acquired provide practical solutions for end users and local communities.

In recent years, FEP has expanded its expertise in areas such as the preparation of environmental expertise, municipal environmental protection programmes, environmental reports, environmental impact assessments, various monitoring activities, waste management and projects for regional action communities. It has become the leading Slovenian institution for the calculation of environmental impacts (LCA analyses, carbon footprinting) and provides consultancy services for the development of environmentally friendly products, technologies and systems. Special attention is also given to research on microplastics in the environment and finding innovative solutions to its problems. Sustainable management of wildlife populations remains an important part of our work. We are a leading institution in Slovenia and Europe in preventing vehicle collisions with large mammals and reducing human-wildlife conflicts.

With a strong scientific base and practical experience, FEP remains a key partner in developing environmentally sound solutions that contribute to a greener and more sustainable future.

PROIZVODI / STORITVE:

- Podpora pri razvoju okolju prijaznih izdelkov z orodji ekodizajna
- LCA analize
- Izračun izdelčnih in organizacijskih ogljičnih odtisov
- Priprava strategij razogljičenja
- Priprava strategij za krožno gospodarstvo
- Priprava poročil o trajnosti skladno z ESRS
- Priprava strategij trajnostnega razvoja
- Monitoringi dvoživk
- Poročila o vplivih na okolje
- Okoljska poročila
- Poročila o stanju okolja
- Občinski programi varstva okolja
- Demografske študije
- Izobraževanja s področja trajnostnega razvoja

PRODUCTS & SERVICES:

- Support in the development of environmentally friendly products with eco-design tools
- LCA analysis
- Calculation of product and organizational carbon footprints
- Preparation of decarbonization strategies
- Preparation of strategies for the circular economy
- Preparation of sustainability reports in accordance with ESRS
- Preparation of sustainability strategies
- Amphibian monitoring
- Environmental impact reports
- Environmental reports
- Environmental status reports
- Municipal environmental protection programs
- Demographic studies
- Sustainable development training



GZS - Zbornica elektroindustrije



Foto: Tadej Kreft



Zbornica elektronske
in elektroindustrije

Zbornica elektroindustrije Grozid Pametne tovarne

Dimičeva ulica 13
1504 Ljubljana
Slovenija, EU
T: 01 5898 000
F: 01 230 22 58
E: ze@gzs.si
www.gzs.si/zei

Zbornica elektroindustrije (ZEI) je največja reprezentativna zbornica slovenske elektroindustrije, ki združuje približno 160 podjetij, katerih glavna dejavnost je proizvodnja elektronskih in električnih proizvodov ter z njimi povezanimi storitvami. Deluje v okviru **Gospodarske zbornice Slovenije (GZS)**, ki je najvplivnejša povezava gospodarstva v Sloveniji.

Osnovno poslanstvo ZEI je spodbujanje konkurenčnosti elektroindustrije s soustvarjanjem boljših pogojev za gospodarjenje, ugodnejšega makroekonomskega okolja in učinkovitejše zakonodaje. Sodelovanje v nacionalnih in mednarodnih organizacijah ter projektih omogoča izmenjavo znanj in dobrih praks, kar utrjuje njeno vlogo pri podpori sektorja, izboljšuje poslovno okolje in spodbuja podjetniški razvoj ter utrjuje položaj slovenske elektroindustrije na trgu.

Pod glavne naloge Zbornica štejeemo promocijo in podporo članom ZEI preko petih stebrov delovanja – podpora konkurenčnosti elektroindustrije, socialni dialog, krepitev članstva in storitev za člane, ter digitalni in zeleni prehod elektroindustrije.

Eden osrednjih stebrov delovanja ZEI je digitalizacija panoge oz. spodbujanje prehoda v industrijo 4.0 / 5.0. Usmeritev aktivnosti v spodbujanje tehnološke prenovne proizvodnje v podjetjih elektroindustrije rezultira v vitko in agilno panogo. Kot del Gospodarskega strateškega sveta za digitalizacijo, ZEI skupaj s člani razvija strategije digitalizacije, spodbuja inovativnost, konkurenčnost in zagotavlja usklajenost z globalnimi trendi digitalne preobrazbe.

V ta namen je GZS ZEI ustanovila **Grozid Pametne tovarne**.

***The Electrical Industry Association (EIA)** is the largest representative association of the Slovenian electrical industry, bringing together approximately 160 companies whose main activity is the production of electronic and electrical products and related services. It operates within the framework of **the Chamber of Commerce and Industry of Slovenia (CCIS)**, the most influential economic association in Slovenia.*

The primary mission of EIA is to promote the competitiveness of the electrical industry by co-creating better conditions for business, a favorable macroeconomic environment, and more efficient legislation. Participation in national and international organizations and projects enables the exchange of knowledge and best practices, which strengthens its role in supporting the sector, improves the business ecosystem, encourages entrepreneurial development, and reinforces the position of the Slovenian electrical industry in the market.

The main tasks of the association include the promotion and support of its members through five pillars of operation – support for the competitiveness of the electrical industry, social dialogue, strengthening of membership and services for members, and the digital and green transition of the electrical industry.

One of the central pillars of EIA's operation is the digitalization of the industry, i.e., promoting the transition to Industry 4.0 / 5.0. The focus of activities on encouraging the technological renewal of production in electrical industry companies results in a lean and agile sector. As part of the Economic Strategic Council for Digitalization, EIA, together with its members, develops digitalization strategies, promotes innovation and competitiveness, and ensures alignment with global digital transformation trends.

*To this end, CCIS EIA has established **the cluster SRIP Smart Factory**.*

PROIZVODI / STORITVE:

Zbornica elektroindustrije znotraj partnerstva SRIP Tovarne prihodnosti koordinira grozd Pametne tovarne, katerega cilj je spodbujati konkurenčnost in trajnost proizvodnih procesov ter izdelkov, s poudarkom na naprednih tehnologijah za prehod v Industrijo 4.0 / 5.0.

Ključni cilj je tudi razvoj človeških virov za pametne tovarne in napovedovanje I4.0 / 5.0 kompetenc za ključne profile podjetja in priprava kariernih načrtov po metodologiji KPZ.

SiMER je sekcija, ki združuje proizvajalce, uporabnike in distributerje merilne opreme v skupno mrežo, ki jo koordiniramo znotraj Zbornice elektroindustrije. Prizadevamo si za promocijo meroslovja med mladimi, ki z ustreznimi kompetencami zagotavljajo napredek. Podpiramo povezovanje in razvoj za trajnostno prihodnost s katerim dvigujemo kakovost merilnih rešitev za industrijo v Sloveniji.

Aktivnosti zelenega prehoda ZEI so usmerjene v celovito podporo članom pri prehodu na bolj trajnostno poslovanje. Osredotočamo se na informiranje podjetij o ključnih vidikih zelenega prehoda, spodbujanje k razvoju na področju krožnega gospodarstva, pri čemer posebno pozornost namenjamo vpeljavi krožnosti v industrijo, z okolju prijazno proizvodnjo in zmanjševanjem e-odpadkov.

PRODUCTS & SERVICES:

The Electrical Industry Association, within the SRIP Factories of the Future partnership, coordinates the cluster Smart Factory, whose goal is to promote the competitiveness and sustainability of manufacturing processes and products, with a focus on advanced technologies for the transition to Industry 4.0 / 5.0.

A key objective is also the development of human resources for smart factories and the forecasting of I4.0 / 5.0 competencies for key company profiles, along with the preparation of career plans based on the KPZ methodology.

SiMER is a section that brings together manufacturers, users, and distributors of measuring equipment into a common network, coordinated within the Electrical Industry Association. We strive to promote metrology among young people, ensuring progress with the right competencies. We support collaboration and development for a sustainable future, enhancing the quality of measurement solutions for the industry in Slovenia.

The green transition activities of EIA are aimed at providing comprehensive support to members in transitioning to more sustainable business practices. We focus on informing companies about key aspects of the green transition and encouraging development in the field of the circular economy, with particular emphasis on introducing circularity into the industry through environmentally friendly product design and the reduction of e-waste.



GZS - Združenje kemijske industrije



Združenje kemijske industrije



Dimičeva 13, 1000 Ljubljana
01/5898-257
zki@gzs.si
www.pravakemija.si

Združenje kemijske industrije Slovenije (ACIS) deluje samostojno pod okriljem **Gospodarske zbornice Slovenije (GZS)**. Člani ACIS so proizvajalci kemikalij in kemičnih izdelkov, farmacevtskih izdelkov ter izdelkov iz plastike in gume. Gospodarska zbornica Slovenije (GZS) je največja in najvplivnejša povezava gospodarstva v Sloveniji z več kot 20 panožnimi (proizvodnimi in storitvenimi) združenji, ki predstavljajo vse sektorje gospodarstva, ter 13 lokalnimi pisarnami.

PROIZVODI / STORITVE:

- Identificiranje skupnih interesov, potreb in pobud članov in na podlagi le-teh oblikovanje skupnih stališč in predlogov do različnih partnerjev,
- partnerska vloga do ministrstev in drugih upravnih organov pri urejanju problemov panoge
- informiranje, svetovanje, strokovno izobraževanje in usposabljanje članov,
- sodelovanje v mednarodnih strokovnih združenjih,
- izvajanje drugih aktivnosti, ki članom pomagajo pri poslovanju, razvoju, položaju in ugledu v družbi.

Association of Chemical Industry of Slovenia (ACIS) operates autonomously under the umbrella of CCIS. ACIS's members are manufacturers of chemicals and chemical products, pharmaceuticals and of rubber and plastic products. **Chamber of Commerce and Industry of Slovenia (CCIS)** is the largest and most influential link of economy in Slovenia with more than 20 branch (manufacturing and service) associations, representing all sectors of the economy and 13 local offices.

PRODUCTS & SERVICES:

- Identifying common interests, needs, and initiatives of the members and, based on these, formulating common positions and proposals to various partners,
- acting as a partner to ministries and other administrative bodies in addressing industry issues,
- informing, advising, professionally educating, and training members,
- participating in international professional associations,
- conducting other activities that help members in their business operations, development, status, and reputation in society.

IJS, Odsek za avtomatiko, biokibernetiko in robotiko - E1



Institut Jožef Stefan
E1 - Odsek za avtomatiko,
biokibernetiko in robotiko
Jožef Stefan Institute
E1 - Department of Automation,
Biocybernetics and Robotics

Jamova cesta 39
1000 Ljubljana

www.abr.ijs.si
www.ijs.si

Rekonfigurabilna robotska montažna celica
Reconfigurable robotized assembly cell

Odsek za avtomatiko, biokibernetiko in robotiko se na Institutu "Jožef Stefan" ukvarja z raziskovalno razvojnimi temami, ki obravnavajo značilnosti gibanja pri človeku ter njegovo povezavo z okoljem, s strojem ali tehnološkim procesom. Rezultati teh raziskav se uporabljajo v industrijski avtomatizaciji in robotizaciji kot ključnemu gradniku tovarn prihodnosti ter v različnih vejah medicine in v športu.

Poleg temeljnih raziskav na teh področjih izvajamo tudi raziskave in razvoj, ki omogočajo, da se pridobljeno znanje in tehnologije čim prej prenesejo k uporabnikom tako v medicini kot tudi industriji.

Glavne smeri raziskav se nanašajo na integracijo mobilnosti in manipulacije pri industrijskih in servisnih robotih, na humanoidne robote, v tovarne prihodnosti, na študij fizioloških značilnosti človeka v različnih (ekstremnih) okoljih, na razvoj novih biomedicinskih naprav, metod in postopkov ter na problematiko avtomatizacije, robotizacije in informatizacije industrijske proizvodnje. Tako raziskave odseka vključujejo skoraj vsa področja robotike, od kinematike in dinamike mehanizmov, vodenja robotov, robotskega vida, pa do servisne robotike in biomehanike.

Izvajamo tudi zahtevne naloge avtomatizacije in robotizacije proizvodnje za tovarne prihodnosti, ki presegajo dostopne rešitve na trgu ter zahtevajo inovativne in alternativne pristope, tako v okviru evropskih kot tudi domačih projektov.

The Department of Automation, Biocybernetics and Robotics at the Jožef Stefan Institute deals with research and development topics that address the characteristics of human movement and its connection with the environment, the machine or the technological process. The results of these researches are used in industrial automation and robotization as a key building block for Factories of the future and in various branches of medicine and in sport.

In addition to basic research in these areas, we also carry out research and development, which enables the acquired knowledge and technologies to be passed on to users in both medicine and industry as soon as possible.

The main directions of research relate to the integration of mobility and manipulation in industrial and service robots, to humanoid robots, to factories of the future, to the study of the physiological characteristics of humans in different (extreme) environments, to the development of new biomedical devices, methods and processes, and to the problems of automation, robotization and computerization of industrial production. Our research includes almost all branches of robotics research, from kinematics and dynamics, control of mechanisms, robotic vision, up to service robotics.

We also implement demanding automatization and robotization tasks for factories of the future, which surpass standard and easily applicable solutions. We apply new, innovative, and alternative approaches to the solution, both within European and domestic projects.

IJS, Odsek za sisteme in vodenje - E2



Institut Jožef Stefan
E2 - Odsek za sisteme in vodenje
Jožef Stefan Institute
E2 - Department of Systems and Control
 Jamova cesta 39
 1000 Ljubljana
 Slovenija, EU

dr. Vladimir Jovan
 +386(0)1 477 37 38
 vladimir.jovan@ijs.si



Diagnostični sistem za celovito končno kontrolo kvalitete elektromotornega pogona za kolesa. Institut „Jožef Stefan“, fotografija: Arne Hodalič in Katja Bidovec
Diagnostic system for holistic final quality control of electric motor drive for bicycles. Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Tehnologije vodenja predstavljajo združitev različnih strokovnih področij (avtomatike, kibernetike, računalništva, elektronike, informatike, inženirstva, umetne inteligence, teorije sistemov, itd.), ki skupaj zagotavljajo funkcionalnost, zanesljivost, varnost in učinkovitost delovanja naprav, strojev tehnoloških linij, procesov in sistemov. Zato so tehnologije vodenja **ključna infrastrukturna omogočitelna tehnologija**, ki nastopa kot **integrator** vseh tehnologij, potrebnih pri zasnovi in izvedbi novega izdelka/sistema. Gre torej za tipično horizontalno tehnologijo, ki svojo uporabo najde na zelo različnih področjih družbenega razvoja, med katerimi izstopa uporabnost tehnologij vodenja pri razvoju gradnikov, orodij in sistemov za tovarne prihodnosti.

Glede na izkazane kompetence, kapacitete in interes industrijskih partnerjev, je poudarek razvojnih raziskav namenjen:

- zasnovi novih gradnikov, ki bodo prispevali k močnejši integraciji fizikalnega in digitalnega sveta v tovarnah prihodnosti,
- razvoju novih postopkov, ki zagotavljajo samodejno vsestransko in globinsko analizo kakovosti izdelkov (z namenom zagotavljanja 100% kakovosti izdelkov),
- razvoju novih postopkov za sprotno ocenjevanje stanja/kondicije strojev in naprav (PHM- Prognostics & Health Management),
- razvoju novih zmogljivih orodij za rudarjenje informacij v proizvodnih podatkih (s pomočjo matematičnih modelov).

Rezultate razvojnih aktivnosti bomo uporabili predvsem okviru fokusnih področij »Inteligentni sistemi vodenja za tovarne prihodnosti« in »Pametna tovarna«, pa tudi v drugih fokusnih področjih, ki so vključena v SRIPTOP.

Control technologies represent fusion of various professional fields (automation, cybernetics, computer science, electronics, informatics, engineering, artificial intelligence, system theory, etc.), which together provide functionality, reliability, safety and efficiency of operation of machines, technological lines, processes and systems. Therefore, control technologies are **a key infrastructural enabling technology**, which acts as an **integrator** of all the technologies needed to design and implement a new product/system. It therefore represents a typical horizontal technology that finds its usability in very different areas of social development, among which stands out the applicability of control technologies in the design and development of building blocks, tools and systems for Factories of the Future. Based on the competences, capacities and interest of industrial partners, the focus of applicative research is towards

- design of new building blocks, which will contribute to stronger integration of the physical and digital world in factories of the future,
- development of new procedures that ensure an automatic, comprehensive and deep analysis of product quality (with the aim of providing 100% quality of final products),
- development of new procedures for the ongoing assessment of the state/condition of machines and devices (PHM-Prognostics & Health Management),
- developing new powerful tools for mining information in production data (using mathematical models).

The results of the development activities will be used primarily in the framework of the focus areas "Intelligent Control Systems for the Future Factories" and "Smart Factory" as well as in other focus areas that are included in the SRIPTOP.

IJS, Odsek za umetno inteligenco - E3

**Institut
"Jožef Stefan"**
Ljubljana, Slovenija



Diagram različnih stanj proizvodnega sistema, ki je bil avtomatsko zgrajen iz multivariantnih senzorskih podatkov z orodjem StreamStory za analizo in raziskovanje podatkov.
A diagram of the different states of a manufacturing system automatically constructed from multivariate sensor data by the StreamStory data analysis and exploration tool.

Odsek za umetno inteligenco (www.ailab.ijs.si) s približno 40 raziskovalci, je eden izmed največjih evropskih raziskovalnih skupin na področju strojnega učenja, rudarjenja podatkov in drugih tehnologij, ki temeljijo na metodah in tehnologijah umetne inteligence. Najpomembnejša področja raziskav in razvoja so: analiza podatkov s poudarkom na tekstovnih, spletnih, večpredstavnih in dinamičnih podatkih, tehnike za analizo velikih količin podatkov v realnem času, strojno učenje, analize in modeliranje velikih omrežij, vizualizacija kompleksnih podatkov, semantične tehnologije, jezikovne tehnologije, metode sklepanja ter širše področje raziskav upravljanja z znanjem. Poleg objav raziskovalnih rezultatov so sodelavci razvili vrsto metod in orodij za čezmodalno analizo podatkov.

Mednarodni raziskovalni center za umetno inteligenco« pod okriljem UNESCO (www.ircai.org), pred kratkim ustanovljen na IJS, je prvi mednarodni raziskovalni center na področju umetne inteligence. IRCAI trenutno zaposluje 12 raziskovalcev, ki so spomladi 2020 vzpostavili orodje Coronaviruswatch.ircai.si. Orodje v realnem času sledi objavam o virusu, posodablja pa tudi podatke o širjenju virusa po svetu.

Department for Artificial Intelligence (<http://ailab.ijs.si>), with approx. 40 researchers, is one of the largest European research groups working in the areas of machine learning, data mining, language technologies, semantic technologies and sensor networks. The key research direction is combining modern statistical data analytic techniques with more semantic/logic-based knowledge representations and reasoning techniques with the purpose to progress in solving complex problems such as text understanding, large scale probabilistic reasoning, building broad coverage knowledge bases, and dealing with scale.

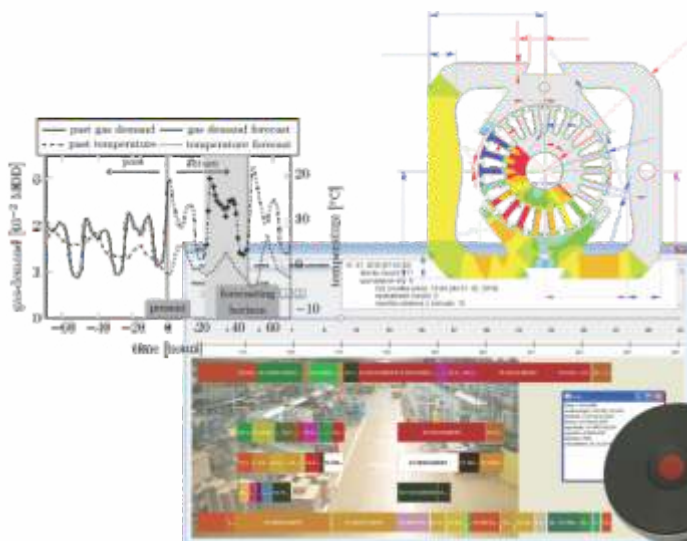
International Research Center on Artificial Intelligence under auspices of UNESCO (<http://ircai.org>) is the first UNESCO International Research Center on AI that has been recently established at JSI. IRCAI currently has 12 researchers that address global challenges related to AI. One of the first services developed by IRCAI is Coronaviruswatch.ircai.si.

IJS, Odsek Računalniški sistemi - E7



Institut Jožef Stefan
E7 - Odsek Računalniški sistemi
Jožef Stefan Institute
E7 - Computer Systems Department
 Jamova cesta 39
 1000 Ljubljana
 Slovenija, EU

+386(0)1 477 31 06
 gregor.papa@ijs.si



Rešitve s področja napovedovanja porabe, optimizacije načrtovanja, planiranja in razvrščanja v proizvodnji, ...

Inštitut »Jožef Stefan« je raziskovalna organizacija za temeljne in aplikativne raziskave v naravoslovju in tehnologiji. Ima vlogo nacionalnega raziskovalnega inštituta in dopolnjuje vlogo univerz ter premošča vrzel med znanostjo in industrijo.

Osnovne raziskave **Odseka za računalniške sisteme** obsegajo razvoj naprednih računalniških struktur, zmogljivih algoritmov za obdelavo velikih količin podatkov ter sistemov za učinkovito interakcijo med človekom in računalnikom. Pozornost namenjamo samopopravljivim in samonastavljivim sistemom, modeliranju in optimiranju kompleksnih, dinamičnih in nedeterminističnih sistemov. V okviru navedenih raziskav razvijamo aplikacije na področjih proizvodnje, transporta, energetike, bioinformatike, zdravja in medicine. Raziskovalci na odseku vzdržujejo visok nivo aktualnega znanja z raziskovalnih področij in imajo vzpostavljene povezave in sodelovanja z drugimi akademskimi institucijami in industrijo. Sodelujemo v več mednarodnih projektnih konzorcijih v okviru programov FP7, H2020 in JS ECSEL / ARTEMIS ter v nacionalnih industrijskih projektih.

PROIZVODI / STORITVE:

Aplikacije (namizne, mobilne) in servisi za:

- večkriterijske optimizacije kompleksnih in dinamičnih sistemov,
- obnovljive / prilagodljive programske in strojne strukture,
- digitalne dvojčke

The Jožef Stefan Institute is a research organization for basic and applied research in natural sciences and technology. It plays the role of a national research institute, complementing the role of the universities and bridging the gap between science and industry.

The Computer Systems department is concerned primarily with the development of advanced computing structures and efficient algorithms for massive-data processing, and systems for effective human-computer interaction. Within this broad area, we are concentrating on self-reparable and self-adapting systems, modelling and optimizing of complex, dynamic and nondeterministic systems.

Our research results are implemented within applications for production, transport, energy, bioinformatics, health, and medicine. Members of the department have close contacts and collaborations with scientists worldwide, through academic links and industrial contacts, thus enabling us to keep at the forefront of rapidly developing fields.

We participate in several international project consortia within the programmes of FP7, H2020, and ECSEL / ARTEMIS JU as well as in national industrial projects.

PRODUCTS & SERVICES:

Applications (desktop, mobile) and services for:

- multi-objective optimization of complex and dynamic systems (uncertainties),
- reconfigurable / adaptive software and hardware structures,
- digital twins.

IJS, Odsek za tehnologije znanja - E8

 Institut
"Jožef Stefan"
Ljubljana, Slovenija



Institut Jožef Stefan
E8 - Odsek za tehnologije znanja
Jožef Stefan Institute
E8 - Department of Knowledge Technologies
Jamova cesta 39
1000 Ljubljana

prof. dr. Sašo Džeroski
+386(0)1 477 32 17
saso.dzeroski@ijs.si



Zmagovalna ekipa mednarodnega izziva Mars express na obisku na Evropski vesoljski agenciji v Darmstadtu.
The winning team of the International challenge Mars Express during a visit at the European Space Agency in Darmstadt.

Področje dela **Odseka za tehnologije znanja** na Institutu Jožef Stefan je razvoj metod umetne inteligence ter naprednih informacijskih tehnologij za zajemljanje in obdelavo podatkov ter odkrivanje in upravljanje znanja. Uveljavljena področja našega dela vključujejo inteligentno analizo podatkov, besedil in spleta (strojno učenje, rudarjenje podatkov, odkrivanje zakonitosti v podatkih), jezikovne tehnologije, računalniško kreativnost, podporo pri odločanju ter upravljanje znanja. Razvijamo tudi aplikacije teh tehnologij na različnih področjih znanosti in industrije. Na področju inteligentne analize in rudarjenja podatkov razvijamo nove metode predvsem na področju strojnega učenja in jih prilagajamo za uporabo v raznovrstnih aplikacijah. Aplikativno je zelo relevantno tudi naše delo na področju metod in sistemov za podporo pri odločanju, v sklopu katerega razvijamo metode in tehnike odločitvenega modeliranja ter podporna računalniška orodja, ki jih povezujemo s sistemi za rudarjenje podatkov.

Odsek je izrazito močno vključen v domače in tuje raziskovalne projekte. V letu 2018 smo bili na primer vključeni v šestnajst domačih raziskovalnih projektov, deset EU projektov Obzorja 2020, eno EU COST akcijo, en INTERREG V-A Slovenija-Italija, en projekt pametne specializacije in dva tržna projekta za zunanje naročnike.

Mednarodno konkurenčnost Odseka za tehnologije znanja na področju razvoja in uporabe metod umetne inteligence, predvsem strojnega učenja na zahtevnih aplikativnih problemih, potrjujejo tudi dosežki, kakršen je bila naprimer zmaga na mednarodnem izzivu Evropske vesoljske agencije Mars express

(<https://www.rtvsl.si/stevilke/znanost/bernard-zenko-mars-express-je-ze-upravil-nalozbo/410118>).

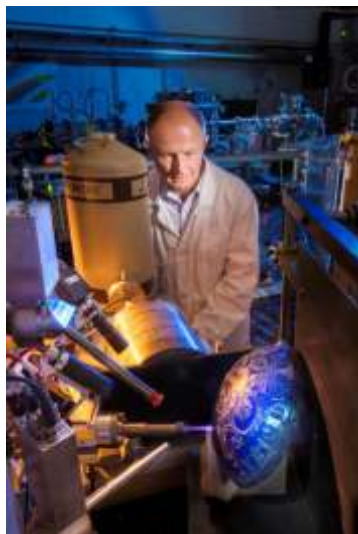
The Department of Knowledge Technologies of the Jožef Stefan Institute is involved in the development of artificial intelligence methods and advanced information technologies aimed at acquiring and storing data and managing knowledge.

Established areas of our work include intelligent data analysis (machine learning, data mining, and knowledge discovery in databases), language technologies, computational creativity, decision support and knowledge management. We are applying these technologies in various fields of science and industry. In the field of intelligent analysis and data mining, we are developing new methods, especially in the field of machine learning, and are adapting them for use in a variety of applications. Applied work is also very relevant in the area of decision support methods and systems, in the scope of which we develop methods and techniques for decision modeling and the supportive computer tools, which are often connected with data mining systems.

The department is strongly involved in national and international research projects. In 2018, for example, we were involved in sixteen national research projects, ten EU projects of Horizon 2020, one EU COST action, one INTERREG V-A Slovenia-Italy, one smart specialization project and two commercial projects.

International competitiveness of the Department of Knowledge Technologies in the field of development and application of artificial intelligence methods, especially machine learning on demanding application problems, is confirmed also by achievements such as winning in the international challenge of the European Space Agency Mars Express (<https://www.rtvsl.si/stevilke/znanost/bernard-zenko-mars-express-je-ze-upravil-nalozbo/410118>).

IJS, Odsek za fiziko nizkih in srednjih energij - F2



analiza sestave antične posode, Institut Jožef Stefan, fotografija: Arne Hodalič in Katja Bidovec
analysis of the composition of the ancient vessel, Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Institut Jožef Stefan
F2 - Odsek za fiziko nizkih in srednjih energij
Jožef Stefan Institute
F2 - Department of Low and Medium Energy Physics
Jamova cesta 39
1000 Ljubljana
Slovenija, EU

vodja odseka / Department Head:
prof. dr. Primož Pelicon
+386(0)1 588 52 94
primoz.pelicon@ijs.si
www.f4.ijs.si

Odsek za fiziko nizkih in srednjih energij izvaja osnovne raziskave na področju jedrske in atomske fizike. Pridobljeno znanje uporablja pri reševanju interdisciplinarnih raziskovalnih problemov, kot so radiološki nadzor okolja, raziskave materialov, biologija, medicina, shranjevanje energije, farmacija, okolje in arheometrija. Poglavitno orodje, ki nam omogoča vrhunsko delo, je 2MV ionski pospeševalnik, lociran v reaktorskem centru v Podgorici. Pospeševalnik ima štiri žarkovne linije, te omogočajo različne raziskave v atomski in jedrski fiziki, kjer smo močno vpeti v evropske raziskovalne projekte. Poleg dela na pospeševalniku izvajamo raziskave z detektorji ionizirajočega sevanja ter eksperimentalnimi napravami za atomsko fiziko in kalibrirana sevalna polja. Sodelavci odseka tudi pogosto gostujejo na veliki eksperimentalni infrastrukturi v tujini. Pri reševanju aplikativnih problemov naše delo sega od rutinskega nadzora radioaktivnosti pitne vode na eni strani do razvoja detektorskih sistemov za mednarodni jedrski raziskovalni center FAIR v Darmstadt na drugi. Široka paleta znanj sodelavcev odseka zagotavlja kvalitetne storitve na najvišjem nivoju.

PROIZVODI / STORITVE:

- analize elementne in izotopske sestave snovi,
- feromagnetizem v keramiki,
- kemijsko slikanje bioloških materialov,
- meritve radioaktivnosti, dozimetrija,
- elektrokemijski procesi v baterijah,
- izdelava mehanskih mikrostruktur s protonskim žarkom,
- razvoj detektorskih sistemov.

The **Department of Low and Medium Energy Physics** carries out basic research in the field of nuclear and atomic physics. It also uses acquired knowledge in solving interdisciplinary research problems, such as radiological control of the environment, material research, biology, medicine, energy storage, pharmacy, environment and archeometry. The 2MV ion accelerator, located in the reactor center in Podgorica, is our main tool. The accelerator has four beam lines, which enable various research in atomic and nuclear physics, where we are strongly involved in European research projects. In addition to the accelerator related work, we conduct research with ionizing radiation detectors and experimental devices for atomic physics and calibrated radiation fields. Colleagues often host on a large experimental infrastructure abroad as well. In solving application problems, our work ranges from routine monitoring of radioactivity of drinking water to the development of detector systems for the FAIR International Nuclear Research Center in Darmstadt. A wide range of researchers' knowledge and experience provides quality services at the highest level.

PRODUCTS & SERVICES:

- analysis of the elemental and isotopic composition of the matter,
- ferromagnetism in ceramics,
- chemical imaging of biological materials,
- radioactivity measurements, dosimetry,
- electrochemical processes in batteries,
- production of mechanical microstructures with proton beam,
- development of detector systems.

IJS, Odsek za tanke plasti in površine - F3



Kolekcija rezalnih in preoblikovalnih orodij,
prekritih z različnimi trdimi prevlekami
*A collection of cutting and forming tools
protected by various hard coatings*

Institut Jožef Stefan
F3 - Odsek za tanke plasti in površine
Jožef Stefan Institute
F3 - Computer Systems Department
Jamova cesta 39
1000 Ljubljana

prof. dr. Miha Čekada
miha.cekada@ijs.si
+386(0)1 477 38 29
www.f3.ijs.si

Odsek za tanke plasti in površine je eden izmed 28 raziskovalnih odsekov Instituta Jožef Stefan.

Ožje raziskovalno področje obsega trde zaščitne prevleke; to so tanke plasti zelo trdih materialov, debele le nekaj mikrometrov, ki se uporabljajo za zaščito orodij pred obrabo.

Pokrivamo celotno verigo dejavnosti, od najbolj elementarnih (fizika plazme, mehanizmi rasti tankih plasti), preko aplikativnih (razvoj prevlek, analitika njihovih lastnosti) do implementacije teh prevlek v industrijsko proizvodnjo.

V okviru odseka deluje tudi Center za trde prevleke (lociran je v Domžalah), kjer nanašamo trde prevleke na orodja za naše industrijske partnerje.

PROIZVODI/STORITVE:

- nanašanje trdih zaščitnih prevlek na orodja (za tehnične detajle se obrnite na odsek),
- nanašanje kovinskih tankih plasti na manjše vzorce,
- svetovanje pri uvajanju prevlek v proizvodnjo,
- zahtevnejša analitika površin in tankih plasti,
- ekspertize in strokovna mnenja,
- tematski strokovni seminarji.

The **Department of Thin Films and Surfaces** is one of 28 research departments of the Jožef Stefan Institute.

Our core research topic includes hard protective coatings; these are thin films made of very hard materials with a thickness of only a few micrometers, which are applied for protection of tools against wear.

We cover the complete chain of activities, starting from the most basic ones (plasma physics, thin film growth mechanisms), to applied ones (development of coatings, analytics of their properties), up to implementation of these coatings into industrial production.

Within the department there is the Hard Coating Center (located in the town of Domžale) where we deposit hard coatings on tools for our industrial partners.

PRODUCTS & SERVICES:

- deposition of hard protective coatings on tools (for technical details, ask the department staff),
- deposition of metallic thin films on small samples,
- consulting on implementation of coatings in industrial production,
- advanced analytics of surfaces and thin films,
- expertise and professional opinions,
- dedicated professional seminars.

IJS, Odsek za tehnologijo površin - F4



Institut Jožef Stefan
F4 - Odsek za tehnologijo površin
Jožef Stefan Institute
F4 - Department of Surface Engineering
 Jamova cesta 39
 1000 Ljubljana
 Slovenija, EU

miran.mozetic@ijs.si
 www.f4.ijs.si



Odsek za tehnologijo površin,
 Laboratorij za analizo površin in tankih plasti,
 Institut „Jožef Stefan“, fotografija: Arne Hodalič in Katja Bidovec
 Department of surface engineering,
 Laboratory for surface and thin layer analysis,
 Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Odsek za tehnologijo površin (F4) na Institutu Jožef Stefan se ukvarja z znanstvenimi in tehnološkimi izzivi pri pripravi ustreznih lastnosti površin trdnih in tekočih materialov. Za analizo površin uporablja najodobnejšo opremo, ki je pogosto edinstvena v Sloveniji. Podrobnejše aktivnosti raziskovalne skupine, ki zaposluje deset uglednih znanstvenikov in približno še enkrat toliko ostalih sodelavcev (predvsem mladih raziskovalcev) so:

- raziskave lastnosti površin in tankih plasti ter analize tovrstnih materialov z metodami XPS, AES, SIMS in AFM,
- raziskave plinskih razelektritev in plinske plazme,
- raziskave interakcije plinske plazme z organskimi in anorganskimi materiali,
- razvoj plazemskih postopkov za sintezo in modifikacijo nanomaterialov,
- raziskave interakcije plinske plazme z biološkim materialom za razvoj postopkov za uporabo plinske plazme v kmetijstvu, biotehnologiji in medicini,
- raziskave interakcije plazemskih delcev z industrijskimi vzorci in svetovanje o možnostih industrializacije znanstvenih dosežkov.

PROIZVODI/STORITVE:

Vrhunsko izobražen kader in brezhibno delujoča oprema omogočata vrhunske storitve analiz površine različnih materialov, svetovanje o primernosti uporabe plinske plazme za doseg želenih površinskih lastnosti obdelovancev in načrtovanje ustreznih plazemskih reaktorjev. Storitve prvenstveno opravljamo v okviru skupnih znanstveno-raziskovalnih projektov, možne pa so tudi klasične rutinske analize.

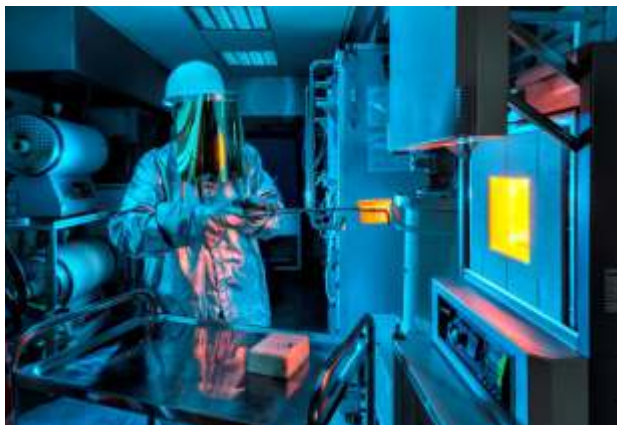
Department of Surface Engineering (F4) at the Jožef Stefan Institute deals with scientific and technological challenges in designing suitable surface characteristics of solid and liquid materials. State-of-the-art technology, often one-of-a-kind in Slovenia, is used for surface analysis. Detailed activities of the research group, comprised of ten eminent scientists and about as many other coworkers (primarily young researchers), are:

- characterization of surfaces and thin layers and analysis of these materials using methods such as XPS, AES, SIMS and AFM,
- gas discharge and gas plasma research,
- research of gas plasma interaction with organic and inorganic materials,
- development of plasma procedures for nanomaterial synthesis and modification,
- research of gas plasma interaction with biological materials to develop procedures utilizing gas plasma in agriculture, biotechnology and medicine,
- research of plasma particle interaction with industrial samples and consulting on the potential of applying scientific advances in industry.

PRODUCTS&SERVICES:

With high-skilled staff and flawlessly operating equipment the department provides superior services in analyzing surfaces of different materials, consulting on using gas plasma for the attainment of desired surface characteristics of treated materials and designing suitable plasma reactors. Services are primarily performed within the framework of scientific and research programs, in addition to carrying out standard routine analyses.

IJS, Odsek za elektronsko keramiko - K5



Procese v materialih pri visokih temperaturah raziskujemo za učinkovito načrtovanje funkcijskih lastnosti keramičnih mikroelektromehanskih sistemov. Institut "Jožef Stefan", fotografija: Arne Hodalič in Katja Bidovec

We investigate processes in materials at high temperatures to tailor the functional properties of ceramic microelectromechanical systems. Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Institut Jožef Stefan
K5 - Odsek za elektronsko keramiko
Jožef Stefan Institute
K5 - Odsek za elektronsko keramiko
Jamova cesta 39
1000 Ljubljana

vodja odseka / Head:
prof. dr. Barbara Malič
tajništvo / Secretariat:
Tina Ručigaj Korošec
T: +386(0)1 477 38 28
F: +386(0)1 477 38 87
tina.rucigaj@ijs.si

Odsek za elektronsko keramiko raziskuje sintezo, lastnosti in uporabo materialov za elektroniko in energetiko, pretežno kompleksnih materialov in struktur, ki lahko opravljajo več funkcij (multifunkcijski materiali). To so predvsem keramični piezoelektri, feroelektri, relaksorji, multiferroiki in prevodni oksidi.

Poudarek raziskav je na kreiranju lastnosti s sintezo in strukturo na nano-, mikro- in makro nivoju. Raziskujemo tudi osnove procesov za pripravo senzorjev tlaka, keramičnih mikroelektromehanskih sistemov (MEMS) in fleksibilne elektronike.

PROIZVODI/STORITVE:

Ponujamo storitve in izobraževanja s področja:

- sinteze anorganskih materialov v trdnem stanju, mehanokemijske sinteze, sinteze iz raztopin;
- oblikovanja materialov s tehnologijami sitotiska, nalivanja, brizgalnega tiskanja, elektroforetskega nanosa, metode vrtenja;
- merjenja in kontrole lastnosti materialov in struktur od nano- do mikro-nivoja.

The Electronic Ceramics Department is active in the research of the synthesis, properties and applications of materials for electronics and energetics, mainly complex multifunctional materials and structures that can perform multiple functions (multifunctional materials). The materials of interest include ceramic piezoelectrics, ferroelectrics, relaxors, multiferroics and conductive oxides.

The emphasis is on the creation of the properties by the synthesis and structure on the nano-, micro- and macro-levels. The group also works on principles of basic technologies of ceramic pressure sensors, ceramic microelectromechanic systems (MEMS) and flexible electronics.

PRODUCTS&SERVICES:

We offer services and education in the field of:

- synthesis of inorganic materials by solid state synthesis, mechanochemical synthesis and solution synthesis;
- patterning of materials with screen printing, tape casting, inkjet printing, electrophoretic deposition, spin coating;
- measurement and control of the properties of materials and structures from nano to micro-level.

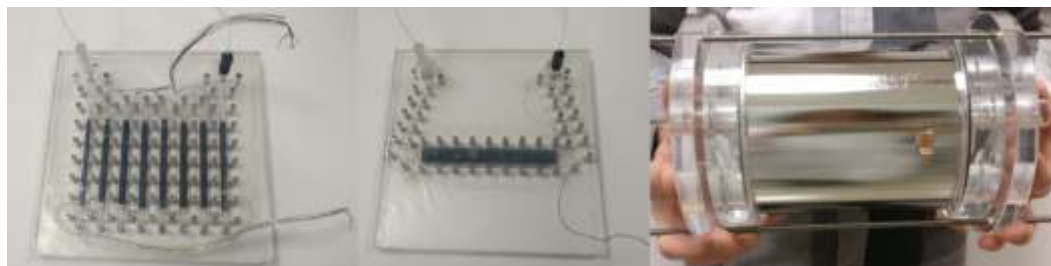
IJS, Nanostrukturni materiali - K7



**Institut
"Jožef Stefan"**
Ljubljana, Slovenija

Institut Jožef Stefan
K7 - Nanostrukturni materiali
Jožef Stefan Institute
K7 - Department for
Nanostructured Materials
Jamova cesta 39
1000 Ljubljana
Slovenija, EU

vodja / Head:
Prof. Sašo Šturm
saso.sturm@ijs.si
tajništvo / Secretariat:
Sabina Cintaurer
sabina.cintaurer@ijs.si



Fotokatalitski mikoreaktorji za podlagi anodiziranih titanatnih nanožic

Na **odseku za nanostrukturne materiale** spodbujamo rast in gospodarsko dejavnost, hkrati pa razvijamo inovacije, ki so konkretne, merljive, realistične in dosegljive.

Na odseku sodelujemo s številnimi podjetji z misijo razvoja tehnologije in končnega produkta.

- Na področju magnetnih materialov se osredotočamo na razumevanje povezave med posameznimi mikrostrukturnimi elementi in končnimi lastnostmi visokoenergijskih magnetov,
- uspešno razvijamo in izboljšujemo varistorско keramiko ter misijo razvoja keramičnih materialov nadaljujemo na področju termoelektričnih generatorjev,
- z namenom izboljšanja kakovosti življenja in ekološke ozaveščenosti razvijamo sisteme za detekcijo in razgradnjo toksičnih organskih spojin v vodi in zraku. Razvijamo senzorje za detekcijo formaldehida in akrilamida na osnovi prenosnih elektrokemijskih in uporovnih senzorjev. Za namen čiščenja in razgradnje organskih spojin smo razvili fotokatalitični TiO₂ mikoreaktor;
- v okviru aditivne proizvodnje se poglobljamo v razvoj izhodnih materialov za oblikovanje kovinskih zlitin, magnetov in keramičnih materialov.

PROIZVODI / STORITVE:

(1) Sinteza in karakterizacija magnetnih materialov za električne motorje in vetrne generatorje, (2) Razvoj in študij mikrostrukture varistorjev, (3) Fotokatalitski mikoreaktorji za čiščenje odpadnih voda in zraka, (4) Elektrokemijski in uporovni senzorji za detekcijo toksičnih organskih spojin, (5) 3D tisk kompleksnih oblik, (6) Elektronska mikroskopija.

At the **Department for Nanostructured Materials** we stimulate growth and economic activity while developing innovations that are concrete, measurable, realistic, and achievable.

We collaborate with companies and the mission is technology development where a product is the final goal.

- In the field of magnetic materials, we focus on understanding the connection between individual microstructural elements and the final properties of high energy magnets,
- successful development and improvement of ZnO₂ varistors ceramics and development of ceramic materials for thermoelectric generators,
- in order to improve the quality of living, we are developing systems for the detection and degradation of toxic organic compounds in water and air. We develop sensors for the detection of formaldehyde and acrylamide based on portable electrochemical and resistance sensors. For the purpose of purification and degradation of organic compounds, a photocatalytic TiO₂ microreactor has been developed;
- in the field of advanced additive manufacturing processes, we are focusing on the development of starting materials for the design of metal alloys, magnets and ceramic materials.

PRODUCTS & SERVICES:

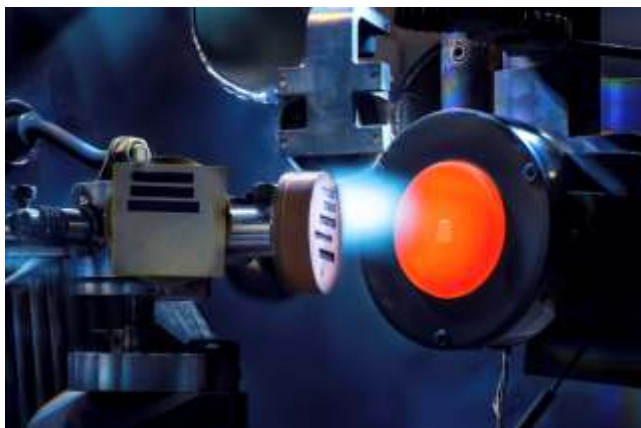
(1) Synthesis and characterization of magnetic materials for electric motors and wind generators, (2) Development and study of varistor microstructure, (3) Photocatalytic micro-reactors for the treatment of waste water and air, (4) Electrochemical and resistance sensors for the detection of toxic organic compounds, (5) 3D printing, (6) Electron microscopy.

IJS, Odsek za raziskave sodobnih materialov - K9



Institut Jožef Stefan
K9 - Odsek za raziskave sodobnih materialov
Jožef Stefan Institute
K9 - Advanced Materials Department
 Jamova cesta 39
 1000 Ljubljana

vodja odseka / Department Head:
 doc. dr. / Asst. Prof. Matjaž Spreitzer
 matjaz.spreitzer@ijs.si



Ultravijolični laser tvori plazemski plaz iz tarče, ki potuje proti segretemu substratu, kjer se delci razporedijo z atomsko natančnostjo. To omogoča epitaksialno integracijo različnih tankih plasti funkcionalnih oksidov na silicijeve podlage za napredne elektronske aplikacije.

Institut "Jožef Stefan", fotografija: Arne Hodalič in Katja Bidovec

An ultraviolet laser forms a plasma plume from a target, which travels towards the heated substrate where the particles arrange themselves with atomic precision. This enables various functional oxide thin films to be integrated in the epitaxial form with silicon substrates for advanced electronic applications.

Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Na **Odseku za raziskave sodobnih materialov** razvijamo nove materiale s poznavanjem soodvisnosti njihovih strukturnih, mikrostrukturnih in funkcionalnih lastnosti. Pri tem uporabljamo napredne tehnologije, ki omogočajo kontrolo sinteze na atomskem in mikrostrukturnem nivoju. Z njimi pripravljamo vnaprej načrtovane strukturirane 3D-materiale, tanke plasti in nanodelce z izbrano kristalno strukturo, kemijsko sestavo in mikrostrukture.

Med našimi pomembnejšimi cilji je razvoj i) novih funkcionalnih oksidnih materialov za elektronske aplikacije, ii) naprednih funkcionalnih materialov, iii) novih biokompatibilnih materialov z izboljšanimi antibakterijskimi ali piezoelektričnimi lastnostmi in iv) toplotnoizolacijskih materialov z zboljšanimi lastnostmi in trajnostnim vidikom. Dodatno pozornost pa posvečamo tudi karakterizaciji električnih lastnosti materialov.

EKSPERTIZE

R & R:

- volumenske keramike in tankih plasti,
- nanodelcev funkcionalnih oksidov z definirano obliko,
- materialov za komponente, kot so keramični kondenzatorji, piezoakuatorji, mikrovalovne naprave, itd.,
- samočistilnih in antibakterijskih premazov za belo tehniko in gradbeništvo,
- biomaterialov za regeneracijo tkiva in regenerativno medicino,
- mineralnih vlaken za zvočno in toplotno izolacijo,
- trajnostnih toplotno-izolacijskih materialov in postopkov njihove priprave po principih krožnega gospodarstva.

*At the **Advanced Materials Department** we investigate novel materials through an understanding of the mutual dependence of their structural, microstructural and functional characteristics. Modern technologies that enable the synthesis of materials with atomic- and microscale precision are used to prepare pre-designed structural 3D materials, thin films and nanoparticles with the desired crystal structure, chemical composition, microstructure and morphology.*

Among our important objectives is the development of i) novel functional oxides for electronic applications, ii) novel functional materials, iii) antibacterial and piezoelectric biocompatible materials and vi) heat-insulation materials with improved properties and sustainability.

EXPERTISE

R&D of:

- bulk ceramics and thin films,
- defined-shape functional oxide (nano)particles,
- materials for components, such as capacitors, piezoactuators, microwave devices etc.,
- self-cleaning and antibacterial coatings for household appliances and civil engineering,
- biomaterials for tissue engineering and regenerative medicine,
- mineral fibres for sound and thermal insulation,
- sustainable thermal insulation materials and processes for their preparation, circular economy principles.

IJS, Odsek za znanost o okolju - O2



Institut Jožef Stefan
O2 - Odsek za znanost o okolju
Jožef Stefan Institute
O2 - Department of Environmental Sciences

Jamova cesta 39
1000 Ljubljana
Slovenija, EU

vodja odseka / Head:
prof. dr. Milena Horvat
milena.horvat@ijs.si

tajništvo / Secretariat:
o2-tajnistvo@ijs.si

T: +386(01) 588 53 55

F: +386(01) 588 43 46

www.ijs.si/ijsw/OkoljeO2

www.environment.si/



Iskanja z navdihom 1949-2019, Institut „Jožef Stefan“, fotografija: Arne Hodalič in Katja Bidovec
Inspired Searching 1949-2019, Jožef Stefan Institute, photo: Arne Hodalič and Katja Bidovec

Multidisciplinarne raziskave **Oddelka za znanosti o okolju** se osredotočajo na kombinacijo fizičnih, kemičnih in bioloških procesov, ki vplivajo na okolje, človeka in človekove dejavnosti. Zato delo temelji na treh glavnih področjih:

- razvoju, optimizaciji in potrjevanju analitičnih metod,
- proučevanju geokemičnih procesov, ki vplivajo na cikličnost in preoblikovanje snovi in elementov,
- presoji vplivov na okolje, ki ocenjuje tveganje, ki ga človekove dejavnosti predstavljajo za zdravje ljudi in za okolje.

V okviru odseka delujeta tudi dva infrastrukturna centra: Center za masno spektrometrijo in Center za radon, del odseka pa je tudi Ekološki laboratorij z mobilno enoto.

Odsek sodeluje pri številnih nacionalnih in mednarodnih raziskovalnih projektih ter neposredno z naročniki uporabnih raziskav. Da lahko sledimo razvoju znanosti, mnogo truda vlagamo v razvoj znanja in posodabljanje raziskovalne opreme.

Pomemben del temeljnih in aplikativnih raziskav odseka izvaja Center odličnosti Okoljske tehnologije, delno financiran s strani EU v okviru strukturnih skladov, ki povezuje znanstveno odličnost centra z industrijo.

V centru izvajamo naslednje storitve:

organsko analizo, multielementarno analizo, specifikacijo elementov, analize živega srebra, analize radionuklidov, stabilne analize izotopov svetlobnih elementov (H, C, N, O, S), analize "netradicionalnih" stabilnih izotopov, bioanalitiko, analizo in meritve nano aerosolov, ter pro bono svetovanje.

*The multidisciplinary research of the **Department of Environmental Sciences** focuses on the combination of physical, chemical and biological processes that influence the environment, man and human activities. Therefore, the work is based on three main areas:*

- *development, optimisation and validation of analytical methods,*
- *study of geochemical processes that influence cycling and transformations of substances and elements,*
- *environmental impact assessment which evaluates the risk that human activities present for human health and for the environment.*

Within the Department there are also two infrastructural centres: the Centre for Mass Spectrometry and the Centre for Radon, as well as the Ecological Laboratory with a mobile unit.

The Department is involved in a number of national and international research projects and directly with the users of applied research. In order to stay abreast of the constant advances in science, much effort is put into development of knowledge and modernisation of scientific equipment.

A significant part of the basic and applied research of the Department is performed by the Environmental Technologies Centre of Excellence, partially funded by the EU Structural Funds, which connects the scientific excellence of the Centre with industry.

The Centre provides the following services: organic analysis, multi-element analysis, element specification, mercury analysis, radionuclide analysis, stable isotope analysis of light elements (H, C, N, O, S), "non-traditional" stable isotope analysis, bioanalytics, and nano aerosol measurements, and pro bono consulting.

Kemijski inštitut - Odsek za katalizo in reakcijsko inženirstvo



Kemijski inštitut / National Institute of Chemistry

Odsek za katalizo in reakcijsko inženirstvo /
Department of Catalysis and Chemical Reaction
Engineering, D13

Hajdrihova 19, 1000 Ljubljana

Dr. Blaž Likozar, blaz.likozar@ki.si, +386 1 4760 281
Vodja odseka za katalizo in reakcijsko inženirstvo
Head of the Department of Catalysis and Chemical
Reaction Engineering



Kemijski inštitut je ena vodilnih slovenskih raziskovalnih, razvojno-tehnoloških organizacij z devetimi ločenimi oddelki, ki pokrivajo različna tehnična področja kemije, od temeljne kemijske znanosti do tehnike, tehnologije in industrializacije. Osnovne in aplikativne raziskave so usmerjene na področja, ki so dolgoročno pomembna tako za Slovenijo kot v svetovnem merilu: raziskave materialov, raziskave na področju ved o življenju, biotehnologija, kemijsko inženirstvo, strukturna in teoretična kemija, analzna kemija in varstvo okolja, pri čemer je inštitut usklajen s potrebami domače in tuje farmacevtske, kemične, avtomobilске in nanobiotehnološke industrije.

Odsek za katalizo in reakcijsko inženirstvo je prvenstveno posvečen kemijskemu (procesnemu) inženirstvu, načrtovanju in izgradnji reaktorjev ter obratovalnih enot, pa tudi več-nivojskemu procesnemu modeliranju. Tematika odseka se nanaša predvsem na pretvorbo ogljikovega dioksida in zemeljskega plina, tehnologije vodika ter gorivne celice, vrednotenje biomase za pripravo bio-osnovanih snovi in procese v (bio)farmacevtiki.

V letu 2022 bo v okviru Infrastrukturnega programa vzpostavljen Center za kemijsko reakcijsko inženirstvo. Novoustanovljena organizacijska enota bo zagotavljala sodobno raziskovalno opremo in visoko usposobljen kader za podporo raziskovalnemu delu na številnih področjih (materiali, farmacevtski inženiring, papirna industrija, pretvorba biomase, nafte in (bio)plina, polimerni inženiring itd.). Obstoječa vključenost v podporo akademskim in razvojnim raziskavam se odraža v številnih sodelovanjih z domačimi in tujimi industrijskimi podjetji. Poleg tega sodelujemo s slovenskimi raziskovalnimi inštituti (Inštitut Jožef Stefan, Inštitut za celulozo in papir, Inštitut za hmeljarstvo) in univerzami (Univerza v Ljubljani, Univerza v Mariboru, Univerza v Novi Gorici), rezultat česar so skupne znanstvene objave in patentne prijave.

***National Institute of Chemistry** is one of the leading Slovenian research, development and technology organisations with nine separate departments, covering the various technical areas of chemistry, arching from the fundamental chemicals' science to engineering, technology and industrialisation. Basic and applied research is aimed at areas of long-term importance for both Slovenia and the world: materials research, life sciences research, biotechnology, chemical engineering, structural and theoretical chemistry, analytical chemistry and environmental protection, whereby the Institute is aligned with the needs of domestic and foreign pharmaceutical, chemical, automotive, and nano-biotechnology industries.*

***Department of Catalysis and Chemical Reaction Engineering** is primarily invested in chemical (process) engineering, reactor and unit operation design and construction, as well as multi-scale process modelling. The Department topics foremost include carbon dioxide and natural gas conversion, hydrogen and fuel cell technologies, biomass valorisation to bio-based compounds, and (bio)pharmaceutical processes.*

Chemical Reactor Engineering Centre will be established in 2022 within the framework of the Infrastructure Program. The newly established organizational unit will provide a modern research equipment and highly qualified personnel to support the research work in many areas (materials, pharmaceutical engineering, paper industry, conversion of biomass, oil and (bio) gas, polymer engineering, etc.). The existing involvement in support of academic and development research is reflected in numerous collaborations with domestic and foreign industrial companies. Furthermore, established collaboration with Slovenian research institutes (Jožef Stefan Institute, Institute of Pulp and Paper, Institute of Hops) and universities (University of Ljubljana, University of Maribor, University of Nova Gorica) reflects in joint scientific publications and patent applications.



Gospodarski dosežki na področju kemijskega reakcijskega inženirstva se odražajo v novih izdelkih, tehnologijah in rešitvah. Programska skupina povezuje kemijsko procesno/produktno inženirstvo. Preko Pisarne za prenos znanja, ki deluje na Kemijskem inštitutu (<https://www.ki.si/o-institutu/pisarna-za-prenos-znanja/>) raziskovalna spoznanja prenašamo v gospodarsko okolje, kar se odraža v povezavah med programom in največjimi kemijskimi podjetji TotalEnergies, BASF, DowDuPont, Mitsubishi Chemical, Evonik, Neste, Perstorp preko pogodb (> 2.000.000 €), storitev, patentov, izmenjav raziskovalcev in projektnih sodelovanj. Člani Programa sodelujejo z največjimi podjetji (Petrol, Krka, Revoz, Lek, Gorenje, Impol, Geoplin, Hella, Talum itd.) ter mikro, malimi in srednjimi domačimi podjetji. Patenti (aplikacije): POMEROY, Brett, LIKOZAR, Blaž... Sustainable Process for Producing 2,5-bishydroxymethyltetrahydrofuran and 1,2,6-hexanetriol from 5-hydroxymethylfurfural by heterogeneous catalysis: LU102760. LIKOZAR, Blaž, BOHRE, Ashish... Process and catalysts to produce methacrylic acid monomer from biomass- derived carboxylic acids: European patent application EP3553045. AVASTHI, Kalpana, BOHRE, Ashish... Process, operation and catalysts to produce functionalised styrene monomers from benzene or aromatic oxygenate compounds by alkenylation reactions: LU101516. HOČEVAR, Brigita, GRILC, Miha... Sustainable process for producing muconic, hexenedioic and adipic acid (and their esters) from aldaric acids by heterogeneous catalysis : European Patent Application EP19192802. FAUSSONE, Gian Claudio, GRILC, Miha... Process and related system for removing ashes from biomasses: PCT/IT2016/000140. LIKOZAR, Blaž, KOSTYNIUK, Andrii... One-step synthesis of glycidol from glycerol in gas-phase fixed-bed continuous flow reactor over alkali metal promoted aluminosilicate zeolite catalyst: brevet d'invention LU101204. LIKOZAR, Blaž, KOSTYNIUK, Andrii... Sustainable production of allyl alcohol: gas-phase conversion of glycerol over metals promoted aluminosilicate zeolite catalysts in a fixed-bed continuous flow reactor: brevet d'invention LU101203.

The economic achievements of the Chemical Reaction Engineering reflect creating new products, technologies and solutions. The Programme group is linking chemical process/product engineering. Through our Knowledge Transfer Office (<https://www.ki.si/en/about-the-institute/knowledge-transfer-office/>), the findings are transferred into the economic reality, which is reflected in the links between the Programme and the largest chemical companies - TotalEnergies, BASF, DowDuPont, Mitsubishi Chemical, Evonik, Neste, Perstorp, through contracts (> 2,000,000 €), services, patents, researcher exchange and project collaborations. The Programme members cooperate with the largest (Petrol, Krka, Revoz, Lek, Gorenje, Impol, Geoplin, Hella, Talum, etc), and micro-, small- and medium domestic enterprises. Patent (applications): POMEROY, Brett, LIKOZAR, Blaž... Sustainable Process for Producing 2,5-bishydroxymethyltetrahydrofuran and 1,2,6-hexanetriol from 5-hydroxymethylfurfural by heterogeneous catalysis: LU102760. LIKOZAR, Blaž, BOHRE, Ashish... Process and catalysts to produce methacrylic acid monomer from biomass- derived carboxylic acids: European patent application EP3553045. AVASTHI, Kalpana, BOHRE, Ashish... Process, operation and catalysts to produce functionalised styrene monomers from benzene or aromatic oxygenate compounds by alkenylation reactions: LU101516. HOČEVAR, Brigita, GRILC, Miha... Sustainable process for producing muconic, hexenedioic and adipic acid (and their esters) from aldaric acids by heterogeneous catalysis : European Patent Application EP19192802. FAUSSONE, Gian Claudio, GRILC, Miha... Process and related system for removing ashes from biomasses: PCT/IT2016/000140. LIKOZAR, Blaž, KOSTYNIUK, Andrii... One-step synthesis of glycidol from glycerol in gas-phase fixed-bed continuous flow reactor over alkali metal promoted aluminosilicate zeolite catalyst: brevet d'invention LU101204. LIKOZAR, Blaž, KOSTYNIUK, Andrii... Sustainable production of allyl alcohol: gas-phase conversion of glycerol over metals promoted aluminosilicate zeolite catalysts in a fixed-bed continuous flow reactor: brevet d'invention LU101203.

Kulturno izobraževalno društvo PiNA



Kulturno izobraževalno društvo PiNA
Jožef Stefan Institute
Association for culture and education PiNA

Gortanov trg 15
6000 Koper
Slovenija, EU

+386(0)5 63 00 320
info@pina.si
www.pina.si

Mednarodni trening Creative Climate Leadership

PiNA je NVO s področja participacije, izobraževanja, kulturnih in kreativnih industrij, z več kot 20 letno tradicijo. Po številu projektov in zaposlenih je med vodilnimi v Sloveniji. Je ena od treh partnerjev projekta RUK, mreže centrov raziskovalnih umetnosti in kulture, katerega cilj je integracija umetnosti in kulture v znanstvene, tehnološke in socialne raziskave, razvoj in inovacije, digitalizacijo, podjetništvo, usposabljanje in izobraževanje, s poudarkom na humanistiki in družboslovju, ekologiji, krožnem gospodarstvu in trajnostnem razvoju. RUK deluje v sozvočju s tremi stebri razvojne strategije S4: digitalnemu razvoju, krožnemu gospodarstvu in Industriji 4.0.

PROIZVODI / STORITVE:

PiNA, v sklopu mreže RUK, vodi laboratorij HEKA, ki s svojo raziskovalno dejavnostjo pokriva naslednja področja:

- Optična vlakna - raziskave senzorike optičnih vlaken
- Bioplastika - raziskava načinov proizvodnje in aplikacije polimerov iz bioplastike iz morskega bio materiala
- Zvok - raziskave na področju zvoka s prvo ambisonično sobo v regiji
- Morje - raziskave človeških vplivov na morski ekosistem
- Brain Scanning / B.M.I. - raziskave možnosti krmiljenja strojnih sistemov preko možganskih valov ter drugih aplikacij tovrstne tehnologije
- Mehatronika - učenje in prakse mehatronike

PiNA is an NGO, working in the field of participation, education, cultural and creative industries, with over 20 years of tradition. In terms of the number of projects and employees, it is among the leading NGOs in Slovenia. PiNA is one of the three national partners running the RUK project, a network of centers of research arts and culture, with the aim to integrate arts and culture into scientific, technological and social research, development and innovation, digitalization, entrepreneurship, training and education, with emphasis on humanities and social sciences, ecology, circular economy, and sustainable development. RUK works in harmony with the three pillars of the S4 Slovenian development strategy: digital development, the circular economy and Industry 4.0.

PRODUCTS & SERVICES:

Within the RUK network, PiNA runs the HEKA laboratory, covering the following fields of research:

- *Optical fibers - research in the field of optical fiber sensory qualities and sensor application*
- *Bioplastics - research of production methods and applications of polymers from bioplastics obtained from marine biomaterial (seagrass, crab shells...)*
- *Sound - sound research with the first ambisonic room in the region*
- *Sea - research on human impacts on the marine ecosystem*
- *Brain Scanning / B.M.I. - research into the possibility of controlling machine systems via brain waves and other applications of this type of technology*
- *Mechatronics - learning and practices of mechatronics in connection with the secondary technical school in Koper*

Mednarodna podiplomska šola Jožefa Stefana



Mednarodna podiplomska šola Jožef Stefan
Jožefa Stefana International Postgraduate School

**Mednarodna podiplomska šola
Jožefa Stefana (MPŠ)
The Jožef Stefan
International Postgraduate School (IPS)**
Jamova cesta 39
1000 Ljubljana
Slovenija, EU

info@mps.si
www.mps.si



Neposredno povezovanje raziskovanja in podiplomskega izobraževanja za ustvarjanje znanja in spodbujanje inovativnosti

Mednarodna podiplomska šola Jožefa Stefana (MPŠ) je bila ustanovljena leta 2004 kot samostojni visokošolski zavod. Pobudo za ustanovitev je podal Institut "Jožef Stefan" ob močni podpori industrije (Gorenje, Kolektor, Salonit) in mednarodnega omrežja sodelujočih univerz in institutov iz Evropske unije, ZDA in Japonske ter vrste drugih držav.

Institut "Jožef Stefan" (IJS) zagotavlja središčno raziskovalno-izobraževalno osnovo, v MPŠ pa kot partnerji združujejo svoje znanje in inovativne zmogljivosti za reševanje razvojnih problemov tudi vabljene raziskovalne, industrijske in druge organizacije.

PROIZVODI / STORITVE:

Doktorski in magistrski študij s področij:

- Nanoznanosti in nanotehnologije
- Informacijske in komunikacijske tehnologije
- Ekotehnologije
- Senzorske tehnologije

Kompetenčni center tovarn prihodnosti

Direct integration of research and postgraduate studies to create knowledge and promote innovativeness

The Jožef Stefan International Postgraduate School (IPS) was established in 2004 as an independent higher education institution. The initiative for the establishment of IPS came from the Jožef Stefan Institute (JSI). It was strongly supported by industry (Gorenje, Kolektor, Salonit) and an international network of cooperating universities and research institutes from the European Union, USA, Japan, and many other countries.

The Jožef Stefan Institute provides the central research and educational basis, whereas other partners, such as invited research institutes, industrial and other enterprises also contribute their knowledge and innovation capacities for solving developmental problems.

PRODUCTS & SERVICES:

Doctoral and master studies from:

- Nanosciences and Nanotechnologies,
- Information and Communication Technologies,
- Ecotechnologies,
- Sensor Technologies

Competence Centre for Factories of the Future

Podjetniški inkubator Kočevje



PODJETNIŠKI INKUBATOR KOČEVJE

TRATA XIV 6a
1330 Kočevje
Slovenija, EU

+386(0)40 567 785
info@inkubator-kocevje.si
www.inkubator-kocevje.si

Inkubator kot del podpornega podjetniškega okolja aktivno pomaga podjetnikom in inovatorjem pri realizaciji poslovnih idej, lansiranju na trg in komercializaciji. Poleg tega povezujejo izobraževanje, prototipiranje, spodbujanje razvoja podjetniške miselnosti in mreženja ter sodelovanje z različnimi izobraževalnimi in razvojnimi institucijami.

Podjetniški inkubator Kočevje se je s prihodom japonske korporacije YASKAWA usmeril v spodbujanje temeljnih znanj robotike pri osnovnošolcih v regiji in to širi tudi na nacionalno raven.

Gre za robote KUBO, ki so prilagojeni izobraževanju otrok starih od 6-9 let in so zelo primerni za uporabo na nepredmetni stopnji – ko ima učitelj več svobode, na kakšen način predstaviti posamezno snov in kako interdisciplinarno povezati več predmetov v uporabno znanje. Na nivoju občine Kočevje se program KUBO uvaja za celotne generacije osnovnošolcev.

Po sistemu "Train-the-Trainer" želijo na inkubatorju to dobro prakso sistematično razširiti tudi v druge dele Slovenije in tako prispevati k tehnološkemu razvoju Slovenije in večjemu številu zainteresiranih učencev za tehniko in sodobne tehnologije.

PROIZVODI/STORITVE:

- pomoč pri razvoju poslovnega modela,
- pomoč pri izvedbi prototipov,
- izobraževanje (podjetništvo, modeliranje, robotika, tuji jeziki, računalništvo ...),
- KUBO roboti (zastopnik za Slovenijo).

Incubator is the main local institution in Kočevje sub-region that actively helps entrepreneurs and innovators to implement their business ideas, create prototypes, launch products, get funding and penetrate new markets.

The incubator is working closely with educational institutions to develop entrepreneurial mindset among the youth and giving them the possibility to gain practical knowledge of new technologies (3D, 2D, programming, robotics, multimedia etc.)

With the arrival of the Japanese robot producer YASKAWA to Kočevje, the Incubator started to teach local children the basics of robotics. They are disseminating this on a national level as well.

They found that KUBO robots are great to teach the children between age 6 and 9. A teacher can use KUBO robots on his own as part of the regular class. They can use it to enhance teamwork, interdisciplinary connect more subjects into applied knowledge etc. KUBO program is now part of curriculum of every elementary school in the Municipality of Kočevje.

With Train-the-Trainer program, they wish to extend this good practice systematically to other parts of Slovenia, thus contributing to the technological development of Slovenia and to increase the number of students interested in new technologies.

PRODUCTS & SERVICES:

- free consulting services (establishing business, generating business model etc.),
- help with product prototyping,
- courses (entrepreneurial, languages 3D modelling, robotics, programming etc.),
- KUBO robots (representative for Slovenia).

Rudolfovo - Znanstveno in tehnološko središče Novo mesto



Pokrivamo vsebine ključnih omogočitev tehnologij za digitalizacijo in digitalno preobrazbo gospodarstva in lokalnih skupnosti.
We cover the key enabling technologies for digitization and digital transformation of the economy and local communities.

{Rudolfovo – Znanstveno in tehnološko središče Novo mesto}, je bilo ustanovljen 23. 3. 2022 s strani Vlade Republike Slovenije. Poslanstvo {Rudolfovega} je soustvarjanje, širjenje in prenos visokotehnološkega znanja partnerjem v gospodarstvu. To počne z izvajanjem množice industrijskih, aplikativnih ter od nedavnega tudi temeljnih projektov.

Delovanje {Rudolfovega} je tako usmerjeno k doseganju naslednjih ciljev:

- ustvarjanje ekosistema novih malih in srednjih visoko inovativnih podjetij, ki bodo temeljila na visoki tehnologiji in bodo geografskemu območju jugovzhodna Slovenija dala potrebno stabilnost, kvalitetna delovna mesta in ekonomsko blaginjo, temelječo na visoki dodani vrednosti,
- podpora poslovanju obstoječih velikih in srednjih podjetij v JVS, da v sodelovanju z raziskovalci iz JRZ Rudolfovo inovirajo svoje izdelke, storitve in procese ter s tem dvignejo svojo konkurenčnost in dodano vrednost,
- povečevanje javnih vlaganj in števila raziskovalcev v JVS in Kohezijsko regijo Vzhodna Slovenija,
- podpora zeleni in digitalni transformaciji slovenskega gospodarstva in javnega sektorja,
- vzpostavitev najsodobnejše raziskovalne infrastrukture na izbranih področjih delovanja, ki bo osnova za prenos znanja v gospodarstvo in v javni sektor,
- izboljševanje odličnosti v znanosti,
- prenos znanja na mlajše generacije,
- navduševanje mladih za poklice s področja STEM,



**{Rudolfovo – Znanstveno in tehnološko
središče Novo mesto/
Science and Technology Centre Novo mesto}**

Podbreznik 15, 8000 Novo mesto
Slovenija, EU
Telefon: +386 41 539 933
www.rudolfovo.eu, info@rudolfovo.eu

Direktor/Director: prof. dr. Janez Povh

{Rudolfovo - Science and Technology Centre Novo mesto} was established on 23 March 2022 by the Government of the Republic of Slovenia. The mission of {Rudolfovo} is to co-create, disseminate and transfer high-tech knowledge to partners in the economy. It does this by carrying out a multitude of industrial, applied and, more recently, fundamental projects.

{Rudolfovo activities are thus geared towards the following objectives:

- creating an ecosystem of new small and medium-sized, highly innovative, high-technology-based enterprises that will provide the geographical area of south-eastern Slovenia with the necessary stability, quality jobs and economic prosperity based on high added value,
- supporting the business of existing large and medium-sized enterprises in the SEE region to innovate their products, services and processes in cooperation with researchers from the Rudolfovo JRZ, thereby increasing their competitiveness and added value,
- increasing public investment and the number of researchers in the SEE and the Eastern Slovenia Cohesion Region,
- supporting the green and digital transformation of the Slovenian economy and public sector,
- establishing a state-of-the-art research infrastructure in selected fields of activity, which will be the basis for knowledge transfer to the economy and the public sector,
- improving excellence in science,
- transfer knowledge to younger generations,
- inspiring young people to pursue STEM careers,
- cooperation with higher education organisations.



Dejavnosti raziskovalno-razvojnega dela krepijo štiri raziskovalne skupine:
 Center za napredne tehnologije
 Center za digitalizacijo
 Center za krožno gospodarstvo
 Center za prenos tehnologij in intelektualno lastnino

Raziskovalna oprema, ki je nepogrešljiva sestavina raziskovalnega in razvojnega dela, je organizirana v petih laboratorijih:

- {LabTOP – Laboratorij za tovarne prihodnosti
- {LabX – Laboratorij za razširjeno resničnost
- {Lab3D – Laboratorij za 3D tehnologije
- {LabM – Laboratorij za materiale

{LabE – Laboratorij za upravljanje z energijo

STORITVE:

- Simulacije za avtomatizirane in robotizirane proizvodne linije,
- offline programiranje robotskih celic,
- razvoj prototipov, testiranje in demonstracije tehnologij,
- razvoj rešitev na osnovi navidezne obogatene in razširjene resničnosti,
- 3D skeniranje različnih objektov z namenom 3D tiskanja,
- kontrola kakovosti – dimenzijska primerjava skeniranega stvarnega objekta z računalniško zasnovanim 3D modelom,
- obratno inženirstvo,
- izdelava parametričnih 3D modelov na osnovi skeniranih objektov,
- 3D skeniranje objektov z namenom ohranjanja njihove digitalne kopije,
- radiografsko in CT skeniranje Nikon XT V 160 Elektrokemijski testi za različne materiale,
- izvajanje LCA analiz,
- analiza zaščite intelektualne lastnine,
- pomoč pri oblikovanju patentnih prijav, zastopanje pri prijavi znakov in modelov,
- pomoč pri pripravi in izvajanju zahtevnejših projektov,
- svetovanje in podpora.



Research and development activities are reinforced by four research teams:
 Center for Advanced Technologies
 Centre for Digitalisation
 Centre for the Circular Economy
 Centre for Technology Transfer and Intellectual Property Rights

Research equipment, an indispensable component of research and development work, is organised in five laboratories:

- {LabTOP - Laboratory for Factories of the Future
- {LabX - Augmented Reality Laboratory
- {Lab3D - Laboratory for 3D Technologies
- {LabM - Materials Laboratory
- {LabE - Laboratory for Energy Management

SERVICES:

- Simulations for automated and robotic production lines,
- offline programming of robotic cells,
- prototype development, technology testing and demonstration,
- developing virtual augmented and extended reality solutions,
- 3D scanning of various objects for 3D printing,
- quality control – dimensional comparison of a scanned real object with a 3D computer model,
- reverse engineering,
- creating parametric 3D models based on scanned objects,
- 3D scanning of objects to preserve a digital copy of these objects,
- Nikon XT V 160 radiographic and CT scanning,
- electrochemical tests for different materials,
- carrying out LCA analyses,
- analysis of intellectual property protection,
- assistance in drafting patent applications, representation in trademark and design applications,
- assistance in the preparation and implementation of complex projects,
- advice and support.

SLOVENSKI INSTITUT ZA KAKOVOST IN MEROSLOVJE, Ljubljana



Poslovna stavba SIQ Ljubljana.

SIQ je strokovna, neodvisna in nepristranska institucija, ki nudi celovite rešitve s področij preskušanja in certificiranja proizvodov, ocenjevanja sistemov vodenja, meroslovja in izobraževanja. S široko in celovito ponudbo podpiramo prizadevanja organizacij, da uresničijo svoje cilje za kakovost izdelkov in storitev ter sledijo svojim usmeritvam za povečanje produktivnosti in uspešnosti poslovanja. Mednarodno veljavnost in strokovni nivo našega dela potrjujejo številne akreditacije in članstva v mednarodnih certifikacijskih shemah in združenjih. Z vami že več kot 50 let.

Poslanstvo SIQ je omogočati ponudnikom hiter vstop na trg s proizvodi in storitvami, ki odgovarjajo vsem pričakovanim in uveljavljenim standardom.

Zanimivo

- SIQ ima preko 1.000 standardov v svojem akreditiranem obsegu.
- 1.800 je slovenskih družb, za katere je SIQ v zadnjih treh letih opravil vsaj eno storitev.
- Zaseda 110. mesto med slovenskimi izvozniki.
- Preko 100 organizacij vsako leto zaupa SIQ izvedbo izobraževanja za zaposlene v zaključeni skupini.
- Preko 600 organizacij letno izbere enega od SIQ-izobraževalnih programov za odprte skupine.

SIQ DEJAVNOSTI:

Preskušanje in certificiranje proizvodov, certificiranje organizacij, igralniške tehnologije, kalibracije in kontrola, protieksplzijska zaščita, informacijske tehnologije, izobraževanje.

SLOVENSKI INSTITUT ZA KAKOVOST IN MEROSLOVJE, Ljubljana **SIQ – Slovenian Institute of Quality and Metrology, Ljubljana**

Mašera-Spasičeva ulica 10
1000 Ljubljana

Mail: Info.izo@siq.si

Tel.: 01 5609 720

SIQ is a professional, independent, and impartial institution providing complete solutions in the fields of product testing and certification, management systems assessment, metrology, and training.

Providing a wide range of comprehensive services, it is our objective to support organizations in their endeavours to realize their goals relating to the quality of their products and services, and to increase the productivity and efficiency of their operation. For more than 50 years, we have cooperated with organizations in their endeavours to enter markets, increase productivity, improve quality, and reach excellence.

With you for over 50 years.

The mission of SIQ is to enable providers to enter the market with products and services that comply with all expected and established standards.

Good to know

- SIQ has over 1,000 standards in its accredited scope.
- 1,800 are Slovenian companies for which SIQ has provided at least one service in the last three years.
- SIQ ranks 110th among Slovenian exporters.
- Every year, over 100 organizations entrust SIQ with the implementation of training for their employees in a closed group.
- Over 600 organizations annually select one of the SIQ training programs for open groups.

SIQ SERVICES:

Product testing and certification, management system assessment, gaming technologies, calibration and inspection, explosion protection, information technologies, training.

SLOVENSKI INŠTITUT ZA STANDARDIZACIJO



Slovenski inštitut za standardizacijo Slovenian institute for standardization

Ulica gledališča BTC 2
1000 Ljubljana
Slovenia
+ 386 1 478 30 13
sist@sist.si
www.sist.si

Slovenski inštitut za standardizacijo (SIST) je nacionalna organizacija za standardizacijo, ki vodi in vzdržuje nacionalni sistem standardizacije, pripravlja, privzema, prevaja in izdaja standardizacijske dokumente ter omogoča sodelovanje vseh zainteresiranih pri zastopanju nacionalnih interesov v evropski in mednarodni standardizaciji. SIST nudi tudi storitve, kot so prodaja standardov, informiranje, izobraževanja, saj je ozaveščanje javnosti o prednostih uporabe standardov in koristih aktivnega sodelovanja v procesih priprave standardov bistvenega pomena za konkurenčno gospodarstvo. Kot stičišče interesov različnih deležnikov in zakladnica strokovnih vsebin zagotavlja standardizacija visoko raven tehnične varnosti, zdravja ljudi in okolja in splošne kakovosti življenja. Skladno s cilji razvoja Republike Slovenije bo SIST tudi v prihodnje stremel k še aktivnejšemu sodelovanju v mednarodnih in evropskih organizacijah, k uveljavljanju slovenskega znanja in slovenskih podjetij na globalnem trgu, krepil podporo zainteresiranim, spodbujal proaktivnost raziskovalnega in gospodarskega sektorja v standardizaciji, zagotavljal podporo javnemu sektorju in sledil razvoju novih tehnologij digitalne, zelenega in trajnostnega gospodarstva ter družbe znanja.

PROIZVODI / STORITVE:

- Prodaja nacionalnih, evropskih in mednarodnih standardov ter drugih standardizacijskih dokumentov;
- informacije uporabnikom o tehničnih predpisih in pravilih za dajanje proizvodov na trg;
- informacije uporabnikom o razvojnih stopnjah posameznih standardov in novih standardizacijskih projektih za specifična področja standardizacije ter o standardih v podporo tehničnim predpisom;
- izobraževanja z različnih področij standardizacije (kakovost, okolje, informacijska tehnologija, zdravje in varnost pri delu, gradbeništvo, itd.).

***The Slovenian Institute for Standardization (SIST)** is a national standardization organization that manages and maintains the national standardization system, develops, adopts, translates and issues standardization documents; it enables participation of all interested parties in representing national interests at European and international level; SIST also provides sales of standards and information, and raises public awareness of the advantages of using standards and active participation in the standardization process through seminars and trainings. As a meeting point of various stakeholders and their interests and a solid basis of expert knowledge, standardization ensures a high level of technical safety, of human and environmental health and significantly improves the quality of life. In line with the developmental goals of Slovenia, SIST will continue to participate actively in international and European standardization organizations, promote Slovenian knowledge and companies on the global market, strengthen its support to interested parties, encourage the proactivity of research organizations and companies in standardization processes, provide support to the public sector and promote the development of new digital technologies, green and sustainable economy and the knowledge society.*

PRODUCTS & SERVICES:

- Sales of national, European and international standards and other standardization documents;
- information to users about technical regulations and the rules for placing products on the market;
- information to users about the developmental stages of individual standards and new standardization projects for specific areas of standardization as well as about standards in support of technical regulations;
- education in various areas of standardization (quality, environment, information technology, occupational safety and health, construction, etc.).

Šolski center Škofja Loka



Šolski center Škofja Loka - MIC

Podlubnik 1b
4220 Škofja Loka
Slovenija, EU

+386(0)4 506 23 0'0
+386(0)4 506 23 71
info@scsl.si
www.tecos.si
www.scsl.si

NAŠE POSLANSTVO:

Glede na izzive okolja ponujamo kakovostne izobraževalne storitve in odgovorno izvajamo vzgojo in izobraževanje. Zagotavljamo izpolnjevanje potreb po izobraževanju mladine in odraslih na ravni poklicnega, strokovnega in višješolskega izobraževanja, spodbujamo vseživljenjsko učenje in sodelujemo z gospodarstvom ter lokalnimi skupnostmi.

V Medpodjetniškem izobraževalnem centru (MIC)

- Gradimo kulturo zaupanja in sodelovanja s podjetji in drugimi partnerji
- Sledimo odličnosti z vodenjem Konzorcija podjetij za spodbujanje kakovosti tehniškega izobraževanja
- Sledimo trendom digitalizacije in novim tehnologijam
- S podjetji razvijamo izobraževalne vsebine in izvajamo usposabljanja za realne potrebe trga dela
- Posodabljammo tehnološko opremo in v realnem okolju povezujemo teorijo s prakso
- Izvajamo razvojno-raziskovalne in podjetniške projekte s podjetji in drugimi partnerji
- Sodelujemo v mednarodnih partnerstvih in izmenjavah dobrih praks v okviru E+ projektov
- Podpiramo osebnostni in karierni razvoj posameznika in se vključujemo v lokalno, regionalno, nacionalno in mednarodno družbeno okolje.
- Razvijamo in povezujemo človeške vire z novimi pristopi v sodelovalnega vodenja in ustvarjanja učeče se skupnosti

Z gradnjo kulture sodelovanja med izobraževanjem in gospodarstvom zmoremo več!

OUR MISSION:

According to the challenges of the environment, we offer quality educational services and we perform education and training in a responsible way. We ensure to provide the educational needs of students and adults are met at the vocational, technical and higher vocational level of education. We promote lifelong learning and we cooperate with economy and local communities.

At our B2B Education Center (MIC):

- *We build a culture of trust and cooperation with companies and other partners*
- *We pursue excellence by leading a Consortium of companies to promote the quality of technical education*
- *We follow digitalization trends and new technologies*
- *We develop educational content with companies and provide training for the needs of the labor market*
- *We update technological equipment and connect theory with practice in a real environment (WBL)*
- *We carry out R&D projects as well as entrepreneurial projects with companies and other partners*
- *We participate in international partnerships and exchanges of good practices within Erasmus+ and Interreg projects*
- *We support personal and career development of the individual and get involved in the local, regional, national and international social environment.*
- *Develop and connect human resources with new approaches to collaborative leadership and creating a learning community.*

We can do more by building a culture of cooperation between education and economy!

ŠTAJERSKA GOSPODARSKA ZBORNICA



Copyright UM FKK

Strateško razvojno-inovacijsko partnerstvo – Mreže za prehod v krožno gospodarstvo (SRIP – Krožno gospodarstvo) je inovacijski grozd, ki povezuje slovensko gospodarstvo, izobraževalno-raziskovalne in razvojne institucije, nevladne organizacije in druge zainteresirane, v sodelovanju z državo, v nove verige vrednosti po načelih ekonomije zaključenih snovnih tokov.

Naša vizija je trajnostno povečati učinkovitost in konkurenčnost domačega gospodarstva pri prehodu v krožno gospodarstvo.

Trajnostni vidik delovanja SRIP – Krožno gospodarstvo je pripomoči k prepoznavnosti Slovenije kot napredne inovatorke na področju krožnega gospodarstva, ki s svojim znanjem, raziskovalno-razvojno infrastrukturo, prebojnimi tehnologijami in storitvami ter podpornim regulatornim okoljem postavlja referenčni standard za vrhunske strokovnjake in tuje investitorje na globalni ravni.

Z uresničevanjem zastavljenih ciljev bodo vsi člani SRIP – Krožno gospodarstvo prispevali tudi k uresničevanju ciljev Slovenske strategije pametne specializacije (S4 in S5), to je k izboljšanju konkurenčnosti Slovenije na globalnih trgih z dvigom dodane vrednosti na zaposlenega, povečanjem obsega znanja in tehnologij v izvozu visokotehnološko intenzivnih proizvodov in storitev ter dvigom podjetniške aktivnosti.

Štajerska gospodarska zbornica je največja regijska gospodarska zbornica v Sloveniji, je prostor prostovoljnega povezovanja podjetij Štajerske in Podravja.

Zastopamo interese gospodarskih subjektov na področju celotne regije, s ciljem večjega vpliva na oblikovanje pogojev gospodarjenja, kar omogoča kakovostno rast in razvoj podjetij v regiji, državi in v tujini. Delujemo na naslednjih strokovnih področjih:

- internacionalizacija in izvajanje čezmejnih storitev
- kadri in zaposlovanje
- davki in finance
- krožno gospodarstvo in energetika
- podjetništvo.



Ulica talcev 24, 2000 Maribor
+386 (0)2 220 87 00
srip@stajerskagz.si
www.srip-krozno-gospodarstvo.si
<https://www.stajerskagz.si/>

The Strategic Research and Innovation Partnership – Networks for the transition into circular economy (SRIP – Circular Economy) is an innovation cluster that connects the Slovenian economy, education, research and development institutions, NGOs and other stakeholders, in cooperation with the state, into new value chains based on the principles of the closed material flow economy.

Our vision is to sustainably increase the efficiency and competitiveness of the domestic economy in the transition to a circular economy.

The sustainable aspect of SRIP - Circular Economy is to contribute to the recognition of Slovenia as an advanced innovator in the circular economy, setting a benchmark for top experts and foreign investors at the global level with its knowledge, R&D infrastructure, breakthrough technologies and services, and supportive regulatory environment.

By implementing the set objectives, all members of the SRIP - Circular Economy will also contribute to the implementation of the objectives of the Smart Specialisation Strategy of Slovenia (S4 and S5), i. e. to improve Slovenia's competitiveness in global markets by increasing the added value per employee, increasing the volume of knowledge and technologies in the export of high-technology-intensive products, services and increasing entrepreneurial activity.

Chamber of Commerce and Industry of Štajerska is the largest regional chamber of commerce in Slovenia, a place of voluntary networking of companies from Styria and the Podravje region.

We represent the interests of economic operators in the entire region, with the aim of having a greater influence on the shaping of economic conditions, which enables the quality growth and development of businesses in the region, the country and abroad.

We work in the following areas of expertise:

- internationalisation and cross-border service provision
- human resources and employment
- tax and finance
- circular economy and energy
- entrepreneurship.

PROIZVODI / STORITVE:

Z naborom svojih storitev se SRIP - Krožno gospod trudi zagotavljati celovito podporo raziskovalno-razvojni dejavnosti naših članov za vzpostavitev raziskovalno-inovacijskega ekosistema na področju krožnega gospodarstva v Sloveniji.

Delujemo na podlagi enovitega poslovnega modela, v katerega so vključena vsa fokusna področja in imajo skupni proračun. To omogoča boljšo povezavo, koordinacijo in integracijo med njimi, kar je rezultiralo v skupnih projektih članov različnih fokusnih skupin in predstavlja potencial za dodatne sinergije v prihodnje. Vodje fokusnih področij imajo pomembno vlogo pri identifikaciji in usmerjanju bodočih aktivnosti SRIP – Krožno gospodarstvo.

Naše storitve obsegajo področja internacionalizacije, izobraževanja in svetovanja pri uvajanju krožnih poslovnih modelov, svetovanje za razvojno-raziskovalne projekte, povezovanje v krožne verige vrednosti, razvojno sodelovanje z državo in promocijo dosežkov članov.

PRODUCTS & SERVICES:

Through our range of services, we strive to provide comprehensive support to the research and development activities of our members for the establishment of a research and innovation ecosystem in the field of the circular economy in Slovenia.

We operate on the basis of a unified business model, in which all focus areas are included and have a common budget. This enables a better connection, coordination and integration between them, which resulted in joint projects of members of different focus groups and represents the potential for additional synergies in the future. Heads of focus areas play an important role in identifying and directing future SRIP activities.

We cover areas as internationalization, education and consulting in the introduction of circular business models, consultancy for research and development projects, connecting in circular value chains, development cooperation with the state and promotion of members' achievements.



UL, FS - Laboratorij za alternativne tehnologije



Univerza v Ljubljani / University of Ljubljana
Laboratorij za Alternativne Tehnologije/
Laboratory for Alternative Technologies

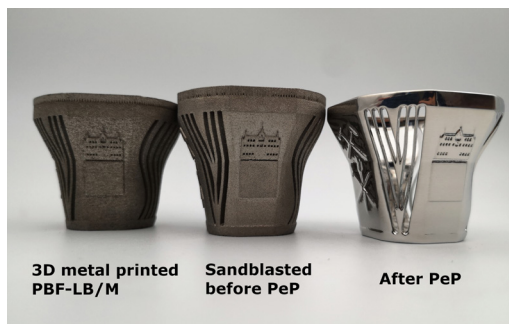
Aškerčeva 6, 1000 Ljubljana
tel.: +386 1 4771 730

<https://web.fs.uni-lj.si/lat/en/home/>

izr. prof. dr. Joško Valentincič
jv@fs.uni-lj.si



PEP machine setup at UL-LAT



Demonstrator fabricated using 3D metal printing, after sandblasting and after plasma electrolytic polishing PEP

Laboratorij za alternativne tehnologije (LAT) Univerze v Ljubljani se osredotoča na napredne raziskave na področjih aditivnih tehnologij, nekonvencionalne obdelave (rezanje z abrazivnim vodnim curkom in elektroerozijo) in drugih inovativnih tehnologij. Osrednje področje strokovnega znanja je razvoj tehnik naknadne obdelave, ki izboljšujejo kakovost in funkcionalnost 3D-natisnjenih delov. Poleg tega smo razvili 3D-natisnjene polimerne strukture z vgrajenimi merilniki za spremljanje mehanskih napetosti v realnem času za izboljšanje natančnosti kompleksnih sistemov. Razvijamo mehke pnevmatske aktuatorje, ki ponujajo prilagodljive rešitve za prilagodljivo rokovanje in robotiko. Z integracijo senzorjev, naprednih aktivacijskih sistemov in inovativne naknadne obdelave vidimo vlogo pri razvoju prilagodljivih mehatronskih sistemov za različne panoge, od letalstva do zdravstva. Sodelovanje z industrijskimi partnerji zagotavlja, da raziskave obravnavajo praktične izzive in spodbujajo uporabo trajnostnih in učinkovitih proizvodnih rešitev. Osredotočenost laboratorija na aditivno proizvodnjo, vgrajene senzorje in prilagodljive aktuatorje je pripomogla k napredku znanja na teh področjih s sodelovanjem in interdisciplinarnim pristopom.

The Laboratory for Alternative Technologies (LAT) at the University of Ljubljana focuses on advanced research in the fields of AM post-processing with an emphasis on plasma electrolytic polishing, additive manufacturing (AM), non-conventional machining (AWJ and EDM) and other innovative technologies. A core area of expertise is the development of AM post-processing techniques that improve the quality and functionality of 3D printed parts. In addition, we have developed 3D-printed structures with embedded strain gauges for real-time monitoring of mechanical stresses to improve the precision of complex systems. We are developing soft pneumatic actuators that offer customizable solutions for adaptive handling and robotics. By integrating sensors, advanced actuation systems and innovative post-processing, LAT plays a role in the development of adaptive mechatronic systems for a variety of industries, from aerospace to healthcare. The lab works closely with industrial partners to ensure that its research addresses practical challenges and promotes the use of sustainable and efficient manufacturing solutions. The lab's focus on additive manufacturing, embedded sensors and adaptive actuators has helped to advance knowledge in these areas, taking a collaborative, interdisciplinary approach.

PROIZVODI / STORITVE

Pametni plazemski sistemi

V kontekstu aditivne proizvodnje se plazemsko elektrolitsko poliranje (PeP) uporablja kot tehnika naknadne obdelave za izboljšanje površine kovinskih delov, vključno s kompleksnimi geometrijami, kot so npr. mrežne strukture. PeP je neabrazivna metoda za glajenje grobih površin do hrapavosti Ra 0,1 μm . Med drugim je primerna za glajenje 3D-natisnjenih komponent npr. ustvarjenih z selektivnim laserskim taljenjem (PBF-LB), in izboljšuje tako estetske kot funkcionalne lastnosti, kot sta odpornost proti koroziji in mehanska trdnost. Ta pristop je še posebej učinkovit pri glajenju robov, poliranju ravnih ali kompleksnih površin ali mrežnih struktur. PeP se pogosto uporablja za izboljšanje oprijemljivosti nanosov na površino (npr. za PVD), sterilizacijo površin in povečanje biokompatibilnosti.

Napredni senzorji

V kontekstu 3D-tiskanja polimernih materialov delujemo na področju fleksibilne elektronike in mehkih aktuatorjev. Pri našem delu so vgrajeni senzorji integrirani v 3D-natisnjene strukture za spremljanje mehanskih obremenitev in deformacij v realnem času. Ti senzorji zagotavljajo natančne podatke med aktiviranjem kompleksnih sistemov in povratne informacije v realnem času, kar je ključnega pomena za zagotavljanje visokih natančnost komponent izdelanih v visoko fleksibilni proizvodnji. Z vgradnjo merilnikov mehanskih napetosti neposredno v material zagotavljamo celovitost in prilagodljivost sistema. Poleg tega se naše raziskave tehnologije pametnih senzorjev osredotočajo na prilagodljive mehanske sisteme, ki združujejo zmožnosti zaznavanja in aktiviranja, kar omogoča učinkovito spremljanje in krmiljenje pnevmatskih aktuatorjev, kot je GRACE.

PRODUCTS & SERVICES

Smart plasma systems

In the context of additive manufacturing, plasma electrolytic polishing (PeP) is used as a post-processing technique to improve the surface finish of metal parts, including complex geometries such as lattice structures. PeP is a non-abrasive method for smoothing rough surfaces, which can smooth the surface to a roughness of Ra 0.1 μm . It is suitable for polishing 3D printed metal parts, e.g. created during selective laser melting (PBF-LB) and improves both aesthetic and functional properties such as corrosion resistance and mechanical strength. This approach is particularly effective in removing burrs, polishing the plain or complex surfaces or lattice structures. PeP is often used to improve the adhesion of coatings to a surface (e.g. for PVD), sterilize surfaces and increase biocompatibility.

Advanced sensors

In the context of polymer AM, we work in the field of flexible electronics and soft actuators. In our work, embedded sensors are integrated into 3D-printed structures to monitor mechanical stress and strain in real-time. These sensors provide precise data during the actuation of complex systems, allowing for real-time feedback, which is critical for achieving high precision of components produced by highly flexible manufacturing. By embedding strain gauges directly into the material, we ensure the integrity of the system under various loads. Additionally, our research into smart sensor technology focuses on adaptive mechanical systems that combine sensing capabilities with actuation, enabling efficient monitoring and control of pneumatic actuators like GRACE for advanced performance.



UM, FS - Laboratorij za načrtovanje proizvodnih sistemov



Univerza v Mariboru, Fakulteta za strojništvo,
Laboratorij za načrtovanje proizvodnih sistemov

Smetanova ulica 17
2000 Maribor

Red. prof. dr. Iztok Palčič
E: iztok.palcic@um.si
T: 02 220 76 36

<http://lanps.fs.um.si/>



Sodelovalno delovno mesto – preizkusi

V Laboratoriju za načrtovanje proizvodnih sistemov (LANPS) se ukvarjamo s praktično vsemi področji menedžmenta proizvodnje: od razvoja izdelkov, načrtovanja tehnoloških postopkov, študija dela in časa, ergonomije, planiranja in vodenja projektov, oblikovanja in modeliranja proizvodnih sistemov in diskretnih simulacij. Trenutne raziskave usmerjamo v tri pomembnejša raziskovalna področja: preučevanje vpliva sodelovalnih delovnih mest na učinkovitost proizvodnih sistemov, ergonomsko oblikovanje delovnega mesta s pomočjo računalniških simulacij in uporabo najsodobnejše raziskovalne opreme (senzorska obleka Xsens) ter analize slovenske in evropske proizvodne industrije s poudarkom na razvoju modelov pripravljenosti in zrelosti na Industrijo 4.0/5.0. Nova raziskovalna oprema nam omogoča napredek predvsem na področjih načrtovanja sodelovalnih delovnih mest, vpeljave naprednih optimizacijskih metod, simulacijskega modeliranja, ergonomskih študij in normiranja časov.

Naše storitve so namenjene reševanju specifičnih izzivov proizvodnih in drugih podjetij:

- študije za oblikovanje in optimiranje proizvodnih sistemov;
- računalniško modeliranje in simuliranje proizvodnih procesov in sistemov;
- ergonomska presoja delovnih mest;
- usposabljanja s področja proizvodnega in projektnega menedžmenta;
- svetovanje s področja projektnega načina dela.

In the **Laboratory for Production and Operations Management (LAPOM)** we deal with practically all areas of production management: from product development, technological process planning, work and time study, ergonomics, project management, design and modelling of production systems and discrete simulations. Current research is focused on three important research areas: studying the impact of collaborative workplaces on the efficiency of production systems, ergonomic workplace design with the help of computer simulations and the use of state-of-the-art research equipment (the Xsens sensor suit), and analysis of the Slovenian and European manufacturing industry with an emphasis on the development of Industry 4.0/5.0 readiness and maturity models. The new research equipment allows us to make progress mainly in the areas of collaborative workplace planning, introduction of advanced optimization methods, simulation modelling, ergonomic studies and setting time standards.

Our services are aimed at solving the specific challenges of manufacturing and other companies:

- studies for the design and optimization of production systems;
- computer modelling and simulation of production processes and systems;
- ergonomic evaluation of workplaces;
- training in the field of production and project management;
- consulting in the field of project-oriented work.

Zavod C - TCS Celje



Zavod C - TCS Celje
Kidričeva ulica 25
3000 Celje
Slovenija, EU

T: +386(0)3 424 42 02
F: +386(0)3 424 41 80
info@toolcluster.net
www.toolcluster.net

TCS – Slovenski orodjarski grozd

TCS je eden od vodilnih slovenskih grozdov, ki vključuje podjetja s področij modernih proizvodnih tehnologij – orodjarstva, strojegradnje, predelave kovin, elektroindustrije in podpornih dejavnosti kot so elektronika, sodobne informacijske tehnologije in telekomunikacije. TCS vključuje tudi institucije raziskovalno-razvojno podpornega okolja, kot so razne raziskovalne organizacije in tehnološki centri, univerzitetne izobraževalne organizacije, kakor tudi podjetja s področij tehnološkega, poslovnega in kadrovskega svetovanja ter razvojne institucije širšega pomena.

Vizija TCS je postati regionalna mreža visoko usposobljenih podjetij in organizacij – razvojni partner najzahtevnejših industrij EU. Ciljni trgi članov TCS so predvsem avtomobilska industrija, letalska industrija in IT industrija.

Namen povezovanja v TCS je povečati konkurenčno sposobnost sodelujočih podjetij in organizacij, razvoj in osvajanje novih tehnologij, uvajanje novih bolj konkurenčnih poslovnih modelov, povečati obseg poslovanja, zniževati stroške poslovanja in vzpostaviti regionalno mrežo specializiranih podjetij in institucij, ki bodo razvojni partner na ravni EU. Kompetenčni center (KC) ROBOFLEX je sestavni del EU mreže kompetenčnih centrov specializiranih za reševanje tehnoloških potreb robotizacije in digitalizacije poslovanja majhnih in srednje velikih proizvodnih podjetij. Mreža nastaja v okviru EU inovacijskega projekta HORSE (Horizon 2020).

DIGITECH SI-East je regijsko digitalno inovacijsko stičišče ustanovljeno s strani partnerjev industrijske inovacijske mreže LENS Living Lab in TCS.

TCS – Toolmakers Cluster of Slovenia

TCS is one of the leading Slovene clusters, whose members are companies dealing with modern production technologies – tool and die making, machine industry, electrical engineering, materials, electronics and ICT support products and services. TCS members are also R&D organizations – universities, different R&D institutes and technology centres as well as technology, management and HRM consulting companies and regional development institutions. TCS's vision is a regional network of highly qualified companies and organizations – a development partner of the most advanced industries in the EU. The target markets of TCS are automotive, aerospace and ICT industry.

The purposes of partnering with TCS are opportunities for improvement of the competitiveness of the participating companies and institutions, research and development of new technologies, the introduction of a new more competitive technologies, business models, sales increase, cost reduction and establishment of the regional network of specialized companies and institutions as the development partner on the EU level.

Competence centre (CC) ROBOFLEX is part of the EU network of competence centres, specialized in solving technological needs of robotisation and digitalisation of small and medium-sized enterprises. The network is developing within the EUR&D project HORSE (Horizon 2020).

DIGITECH SI-East is regional digital innovation hub, founded by partners of industrial innovation network LENS Living Lab and TCS.

TECOS



TECOS, Razvojni center orodjarstva Slovenije Slovenian Tool and Die Development Centre

Kidričeva ulica 25
3000 Celje
Slovenija, EU

+386(0)3 490 09 20
info@tecos.si
www.tecos.si
www.digicen.si

TECOS deluje kot mednarodni razvojni grozd ter razvojno-raziskovalni center hkrati. Na ta način ponuja vrhunske storitve ne samo slovenski orodjarski industriji, temveč tudi vsem ostalim proizvodnim podjetjem v Sloveniji. TECOS si zelo aktivno prizadeva prispevati odlične ter neprekinjene storitve celovite podpore za dvig konkurenčnosti svojih članov na svetovnih trgih. Hkrati svoje storitve v razvojnih in drugih industrijskih projektih ponuja tudi tujim podjetjem.

Glavna strokovna področja, ki jih TECOS pokriva, so:

- razvoj izdelkov,
- modeliranje in izdelava orodij,
- rešitve za večjo energetsko in stroškovno učinkovitost v industrijskih procesih ter digitalizirani proizvodnji,
- robotika in nanotehnologija,
- materiali ter tehnološke novosti na področju pakiranja,
- razvoj na področju medicinskih tehnologij ter tehnologije bele tehnike,
- alternativni sourcing na področju naprednih materialov, optimizacija procesov, hibridne tehnologije ter inovativni bio-materiali, itn..

TECOS na osnovi bogatih izkušenj s področja proizvodnje in razvoja termoplastov ponuja tudi:

- proizvodnjo prototipnih in maloserijskih brizganih izdelkov,
- storitve in svetovanje industriji (napredne CAE in FEM analize, 3D analize in nadzor ter obratno inženirstvo, itd.),
- razvoj in implementacijo proizvodnih procesov za masovno proizvodnjo na terenu,
- laboratorijsko testiranje, specializirana izobraževanja ter aktivnosti na področju poslovnega mreženja.

***TECOS** operates as an International Business Cluster, R&D centre and a VET Institution, providing top level services – not only for the TDM industry, but also to all other manufacturing companies in Slovenia. TECOS stands for excellent and continuous efforts to improve members' competitiveness through provision of valuable resources, and in so doing, active assistance in the global positioning of the TDM industry of Slovenia.*

Main expert areas of TECOS' expertise are:

- product design,
- modelling and tool manufacturing,
- energy efficiency and cost reduction solutions for industrial processes and digital manufacturing,
- robotics and nanotechnologies,
- materials and advancements for packaging,
- development in the fields of medical and domestic appliances,
- alternative material sourcing, optimizing processes, hybrid technologies, innovative bio-materials, etc..

Based on its extensive know-how in manufacturing processes gained through the production of various types of thermoplastic materials, TECOS can offer:

- prototype and small-batch production of injection moulded parts,
- services and advice for the industry (advanced CAE and FEM analyses, 3D digitizing and reverse engineering, precise optical 3D inspection, turn-key product and technology development etc.),
- prototype series and test series of products,
- development and installation of manufacturing processes for mass production on-site,
- laboratory testing, specialized training and networking activities.

UL, FE - Laboratorij LAK



FE

UNIVERZA V LJUBLJANI
Fakulteta za elektrotehniko



Univerza v Ljubljani
Fakulteta za elektrotehniko
Laboratorij za avtomatiko in kibernetiko - LAK
University of Ljubljana
Faculty of Electrical Engineering
Laboratory for Machine Intelligence - LAK
Tržaška 25
1000 Ljubljana
Slovenija, EU

predstojnik / Head:
prof.dr. Igor Škrjanc
igor.skrjanc@fe.uni-lj.si
www.msc.fe.uni-lj.si

Laboratorijska procesna linija / Modular production system

Raziskovalno in razvojno delo **Laboratorija za avtomatiko in kibernetiko** deluje na dveh glavnih področjih.

Prvo področje predstavljajo modeliranje, simulacija in vodenje kompleksnih procesov. Raziskave so usmerjene v temeljne pristope in razvoj metodologije, katerih namen je njihova uporaba v najrazličnejših praktičnih aplikacijah, kot npr. spremljanje in nadzor procesov, ocenjevanje nemerljivih procesnih veličin, napovedovanje procesnih veličin v prihodnosti, zaznavanje napak, rudarjenje podatkov, napredno vodenje industrijskih procesov itd.

Drugo področje raziskovalnega programa predstavlja v zadnjem času izjemno popularno in hitro se razvijajoče področje avtonomnih mobilnih sistemov. Raziskave so usmerjene v praktično problematiko in implementacijo razvitih metod v najrazličnejše avtonomne mobilne sisteme, kot npr. rehabilitacijska in pomožna avtonomna vozila, raziskovalne robote, avtomatsko vodena vozila, brezpilotne letalnike itd. To področje izkorišča tudi temeljna znanja in razvite metode področja modeliranja, simulacije ter vodenja, pri čemer je poudarek na povezovanju klasičnih teoretičnih pristopov ter metod umetne inteligence.

Za dejavnosti na področju gospodarstva je posebno pomembno sodelovanje raziskovalne skupine v Kompetenčnem centru za sodobne tehnologije vodenja – KC STV, Št.: OP13.1.1.2.03.0001, kjer je Igor Škrjanc vodil razvojno-raziskovalni projekt RRP1: Razvojno okolje in gradniki za implementacijo zahtevnih postopkov vodenja, projekt RRP 3.1. Razvoj naprednih metod in algoritmov za sprotno optimizacijo ter vodenje proizvodnje pa je vodil član RP Gašper Mušič. V projektu so sodelovala pomembna slovenska podjetja s področja tehnologij vodenja in avtomatizacije in končni uporabniki storitev s tega področja.

*The research and development work of **Laboratory for Control Systems and Cybernetics** covers two main areas.*

The first area represents modelling, simulation and process control. The field of research is focused on basic principles and development of methodology for the purpose of their implementation in various practical applications, i.e. monitoring and process supervision, estimation of unmeasured process values, prediction of the process values in the future, fault detection, data mining, advanced process control etc.

The second research area represents the field of autonomous mobile systems, which is lately gaining huge popularity and is rapidly growing and evolving. The research is focused on practical issues and implementation of the developed algorithms in various autonomous vehicles, i.e. rehabilitation and special autonomous vehicles, research robots, automated guided vehicles, unmanned aerial vehicles etc. Here also, the group has developed strong connections with successful domestic and foreign companies, with the aim of practical implementation of the developed solutions (implementation technology).

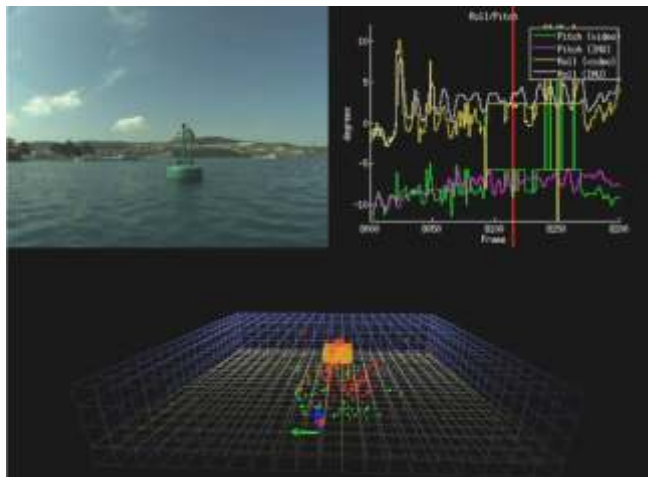
The participation of research group members in the Competence Centre for Advanced Control Technologies (CCACT, no.: OP13.1.1.2.03.0001) was of particular importance. Herewith, Igor Škrjanc led the development and research project RRP1: Development environment and elements for the implementation of complex control algorithms, project RRP3.1.: Production control based on built-in models was managed by RP member Gašper Mušič. The most important Slovenian companies in the field of control technologies together with the end-users were involved.

UL, FE - Laboratorij za strojno inteligenco



FE

UNIVERZA V LJUBLJANI
Fakulteta za elektrotehniko



Robotski vid. Razvita metoda za detekcijo ovir na vodni površini s pomočjo stereo para kamer, za uporabo v avtonomnem robotskem plovilu.
Robot vision. Developed method for detection of obstacles on the water surface using stereo pair of cameras for use in an autonomous robotic vessel.

Laboratorij za strojno inteligenco (LSI) na Fakulteti za elektrotehniko Univerze v Ljubljani (FE) je nastal leta 2018 z združitvijo Laboratorija za strojni vid ter Laboratorija za umetno zaznavanje, sisteme in kibernnetiko. Preko svojih predhodnikov ima tako nekaj desetletij tradicije pri raziskovanju metod umetne inteligence, še posebej računalniškega vida, razpoznavanja govora, strojnega vida in biometričnih postopkov, ki temeljijo na slikovnih tehnologijah. Laboratorij neguje tako dobro razvito sodelovanje tako s sorodnimi laboratoriji na Fakulteti za računalništvo in informatiko kot tudi podjetji, s katerimi načrtuje sodobne industrijske rešitve. Laboratorij je preko svojih članov del programskih skupin ARRS „Vzporedni in porazdeljeni sistemi“ ter „Metrologija in biometrični sistemi“, na ta način pa sodeluje tudi s komplementarnimi raziskovalnimi skupinami iz FE in Instituta Jožef Stefan. Raziskave na področju analize gibanja ljudi so izvedene v sodelovanju s Fakulteto za šport Univerze v Ljubljani.

LSI se bo tudi v prihodnje posvečal raziskavam in razvoju na področjih, ki jih pokriva.

PROIZVODI / STORITVE:

- svetovanje pri vpeljavi modernih metod umetne inteligence (strojni vid, strojni sluh) v industrijsko proizvodnjo in kontrolo kvalitete,
- razvoj algoritmov umetne inteligence (računalniški vid, analiza signalov, globoke nevronske mreže), predvsem za reševanje težkih praktičnih problemov na vseh področjih delovanja laboratorija.

*The **Laboratory for Machine Intelligence (LMI)** at the Faculty of Electrical Engineering, University of Ljubljana (FE), was founded in 2018 with the merger of the Laboratory for Machine Vision and the Laboratory for Artificial Intelligence, Systems and Cybernetics. Through its predecessors, it has a tradition of several decades in researching methods of artificial intelligence, in particular computer vision, speech recognition, machine vision and biometric procedures based on image data. The Laboratory fosters well-developed cooperation with related laboratories at the Faculty of Computer and Information Science as well as companies with which it develops modern industrial solutions. Through its members, the Laboratory is part of the ARRS program groups "Parallel and Distributed Systems" and "Metrology and Biometric Systems". This way it also cooperates with complementary research groups from FE and Jožef Stefan institute. Research in the field of human movement analysis are carried out in cooperation with the Faculty of Sport of the University of Ljubljana.*

LMI will continue to focus on R&D in the areas it covers.

PRODUCTS & SERVICES:

- consulting in the introduction of modern methods of artificial intelligence (machine vision, machine hearing) in industrial production and quality control,
- development of artificial intelligence algorithms (computer vision, signal analysis, deep neural networks), especially for solving difficult practical problems in all areas of laboratory competence.

Univerza v Ljubljani
Fakulteta za elektrotehniko
Laboratorij za strojno inteligenco
University of Ljubljana
Faculty of Electrical Engineering
Laboratory for Machine Intelligence

Tržaška 25
1000 Ljubljana
Slovenija, EU

predstojnik / Head:
prof.dr. Simon Dobrišek
+386(0)1 476 88 40
simon.dobrisek@fe.uni-lj.si

UL, FE - Laboratorij za robotiko Robolab



FE

UNIVERZA V LJUBLJANI
Fakulteta za elektrotehniko



Univerza v Ljubljani
Fakulteta za elektrotehniko
Laboratorij za robotiko
University of Ljubljana
Faculty of Electrical Engineering
Laboratory for Robotics

Tržaška 25
1000 Ljubljana
Slovenija, EU

Vodja laboratorija / Head of Laboratory:
prof. dr. Marko Munih
+386(0)1 476 82 19
marko.munih@fe.uni-lj.si
www.robolab.si
www.cobotics.si



Sodelujoči roboti Centra za sodelujočo robotiko (CRC)

Laboratorij za robotiko (Robolab) se ponaša z dolgoletno tradicijo raziskav na področju gibanja človeka in stroja, robotike in robotskih aplikacij. Z namenom zagotavljanja konkurenčne prednosti slovenske industrije, Robolab sodeluje s številnimi slovenskimi podjetji pri razvoju robotskih tehnologij, prav tako pa tudi z drugimi Evropskimi partnerji. V letu 2016 je bil Robolab organizator Evropskega foruma robotike (ERF 2016).

Aktivnosti laboratorija obsegajo razvoj kompleksnih montažnih robotskih celic in rešitev za elektro in avtomobilsko industrijo, kontaktne in nekontaktne meritve (v kombinaciji z manipulacijo), ter razvoj tehnologij na področju stika robota z okoljem, na primer razizglanje. V sodelovanju s podjetjem Trim, je bil razvit velik robotski manipulator, ki je bil nagrajen z nagrado Evropske Unije za prenos tehnologij v industrijsko okolje (The European Technology Transfer Award). Trenutne aktivnosti so usmerjene tudi v rekonfigurabilno, modularno robotsko okolje za kontrolo kvalitete izdelkov.

V okviru laboratorija deluje tudi Center za sodelujočo robotiko (CRC), ki je bil ustanovljen leta 2018. CRC je mesto znanja in inovacijsko središče, ki se ukvarja z sodelujočo robotiko, robotskimi sistemi za učinkovito in varno združevanje robotov, robotskih orodij, perifernih naprav in naprav za pritrjevanje, delovnih delov, okolja in človeka. CRC je opremljen s petimi naj sodobnejšimi sodelujočimi roboti različnih konfiguracij (ABB Yumi, Franka Emika Panda, Yaskawa HC10, Universal Robots UR5e, Fanuc CR7i), vključno s perifernimi napravami, kamerami in varnostnimi sistemi. Dodatno je Robolab opremljen še z industrijskimi manipulatorji ABB IRB 1600, Staübli, EPSON PS3, parom robotov Motoman MH5 ter šest haptičnimi roboti Omega, Phantom in HapticMaster.

***Laboratory of Robotics (Robolab)** has long-standing excellence in the field of man and machine movement analysis, robotics research, and robotic applications. Providing a competitive advantage to the Slovenian industry, Robolab is cooperating in evolution of the robotic technology for industrial companies, as well with other EU partners. In the year 2016, Robolab was the organizer of the European Robotics Forum (ERF 2016).*

Several complex assembly robot cells and solutions were developed and introduced in Slovenian electro and the automotive industry. One of the focus areas is robot contact with the environment, for example deburring. Another activity domain presents contact and non-contact measurements accompanied by manipulation. An original large-scale robotic telescopic handler that was introduced into building construction in partnership with Trim, was awarded with The European Technology Transfer Award. Current activities also include reconfigurable, modular robotic measurement environment for quality control in production.

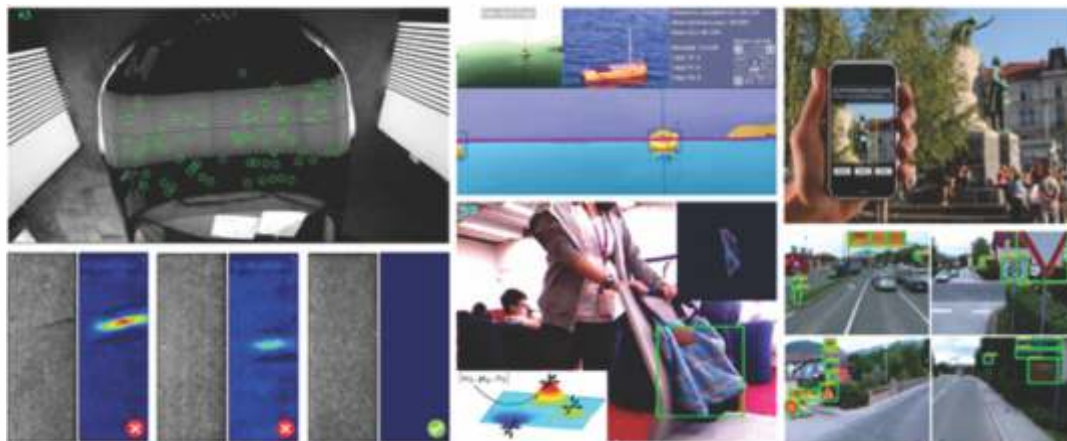
The Collaborative Robotics Centre (CRC) was established in the year 2018, as a part of the Laboratory. CRC is a location of knowledge and innovation hub, developing efficient and secure robotic concepts to combine collaborative robots, robotic tools, peripheral and fixture devices, workpieces, environment, and human. CRC is equipped with five collaborative robots of different configurations (ABB Yumi, Franka Emika Panda, Yaskawa HC10, Universal Robots UR5e, Fanuc CR7i) including peripherals, cameras and safety systems. In addition, Robolab is equipped with several 6 DOF industrial manipulators, such as ABB IRB 1600, Staübli, EPSON PS3, a pair of Motoman MH5 robots and 6 haptic robots Omega, Phantom and HapticMaster.

UL, FRI - LUVSS


FRI
UNIVERZA V LJUBLJANI
Fakulteta za računalništvo in informatiko

ViCOS
sualgnitive
systems lab

Univerza v Ljubljani
Fakulteta za računalništvo
in informatiko
Laboratorij za umetne
vizualne spoznavne
sisteme (LUVSS)

Večna pot 113
1000 Ljubljana
Slovenija, EU


Projekti laboratorija / Laboratory's projects

Laboratorij se ukvarja s temeljnimi in aplikativnimi raziskavami na področju vizualnih inteligentnih sistemov. Naši raziskovalni interesi vključujejo računalniški vid, strojno (globoko) učenje in spoznavo robotiko. Z raziskavami in razvojem rešujemo praktične probleme s ciljem poleg učinkovitosti in uspešnosti zagotavljati tudi prilagodljivost in splošnost rešitev, kar so tudi ključne zahteve paradigme Industrija 4.0. Imamo bogate izkušnje z razvojem algoritmov za vizualno sledenje objektov, detekcijo in kategorizacijo objektov, segmentacijo slik, inkrementalnim vizualnim učenjem, kot tudi s sistemi za interaktivno učenje človek-robot in razvojem rešitev računalniškega vida za pametne mobilne naprave ter industrijske sisteme, kot je vizualni nadzor kakovosti. Izkušnje pridobivamo v sodelovanju z različnimi partnerji v okviru številnih evropskih, nacionalnih in industrijskih projektov. Laboratorij je del Fakultete za računalništvo in informatiko Univerze v Ljubljani, ki ima bogato zgodovino prelomnih dosežkov na širokem področju umetne inteligence.

PROIZVODI/STORITVE:

Razvili smo napredne in robustne rešitve različnih praktičnih problemov, ki zahtevajo interpretacijo slik:

- detekcija in kategorizacija objektov na slikah,
- vizualni navigacijski sistemi za avtonomne robote,
- vizualno sledenje objektov,
- detekcija površinskih napak,
- detekcija in štetje vdolbin na karoseriji,
- semantična segmentacija slike za različne naloge.

The laboratory is involved in basic and applied research of visually enabled intelligent systems. Our research interests include computer vision, machine (deep) learning, and cognitive robotics. We have been developing efficient solutions for practical problems, aiming at flexibility and generality of solutions, which are the key requirements of the Industry 4.0 paradigm. We have extensive experience with visual object tracking, object detection and categorization, image segmentation, incremental visual learning, as well as with systems for human-robot interactive learning and development of computer vision solutions for smart mobile devices and industrial applications, such as automated visual inspection for quality control. Our experience has been accumulated in collaboration with a variety of partners in a number of EU, national and industry funded projects. The laboratory is part of the Faculty of Computer and Information Science, University of Ljubljana, which has a rich history of ground-breaking research in a wide area of artificial intelligence.

PRODUCTS & SERVICES:

We have developed advanced and robust image analysis solutions to a variety of problems:

- *detection and categorization of objects in images,*
- *visual navigation systems for autonomous robots,*
- *visual object tracking,*
- *detection of visual surface defects,*
- *detection and counting of dents on a car body,*
- *semantic image segmentation for various tasks.*

UL, Fakulteta za strojništvo



FS

UNIVERZA V LJUBLJANI
Fakulteta za strojništvo



Univerza v Ljubljani
Fakulteta za strojništvo
University of Ljubljana
Faculty of Mechanical Engineering

Aškarčeva 6
1000 Ljubljana
Slovenija, EU

+386(0)1 477 12 00
www.fs.uni-lj.si

Demonstracijski center Pametna tovarna s ključnimi tehnologijami (digitalni dvojčki, distribuirani sistemi, laserske merilne metode in obdelovalni procesi, laserji, fotonika, optodinamika, odrezovalni procesi, mehatronika in proizvodna kibernatika, hidravlika, hidravlične komponente in simulacije).

Demonstration center of the Smart factory with key technologies (digital twins, distributed systems, laser measuring methods, laser machining processes, lasers, photonics and optodynamics, cutting processes, mechatronics and production cybernetics, hydraulics, hydraulic components and simulations).

Fakulteta za strojništvo je pomembna in največja izobraževalno-raziskovalna ustanova v Sloveniji. Pedagoška dejavnost se izvaja na vseh treh ravneh študija. Diploma, pridobljena na Fakulteti za strojništvo, je mednarodno akreditirana na evropski ravni (ASIIN, ENUA, EUR-ACE) in tako enakovredna ostalim diplomam v Evropi. Na fakulteti ustvarjamo in prenašamo znanje našim študentom in partnerjem na raziskovalnem področju, kar jim omogoča konkurenčno vključevanje v mednarodno okolje. Poseben poudarek je dan prenosu znanja v realno industrijsko okolje.

Glavne raziskave laboratorijev, ki so člani SRIP ToP, se nanašajo na razvoj in integracijo pomembnih tehnologij Industrije 4.0 v skupen okvir pametne tovarne. V ta namen smo na Fakulteti za strojništvo razvili in postavili demonstracijski center Pametna tovarna, ki je namenjen v prvi vrsti raziskavam in razvoju obstoječih, predvsem pa novih tehnologij Industrije 4.0 in novih konceptov pametne tovarne ter prenosu znanj in kompetenc študentom strojništva, še posebej pa industrijskim partnerjem. Najpomembnejši segment raziskav na področju pametnih tovarn so digitalni dvojčki proizvodnih in logističnih procesov in sistemov ter digitalni agenti, podprti z umetno inteligenco, strojni vid, Big data itd. V koncept pametne tovarne vključujemo tudi znanja in kompetence s področij laserjev, laserskih tehnologij, hidravličnih in pnevmatičnih sistemov in krmilij kakor tudi izdelovalnih tehnologij.

*The **Faculty of Mechanical Engineering** of the University of Ljubljana is today the largest institution for education and research of mechanical engineering in Slovenia. The Faculty carries out its educational activities for all three study cycles in accordance with the Bologna Declaration guidelines. A degree, obtained at the Faculty of Mechanical Engineering, is internationally accredited on the European level (ASIIN, ENUA, EUR-ACE), and is equal to other degrees in Europe. In-house design and research work, and quality transfer of knowledge to the students and research partners enables a competitive integration into the international environment. A special emphasis is given to knowledge transfer into the real industrial environment.*

The main research activities of laboratories that are members of SRIP ToP relate to the development and integration of important technologies of Industry 4.0 into the common framework of the smart factory. To this end, we have developed and set up a Demonstration Center Smart factory, which is dedicated primarily to the research and development of the existing and, above all, the new technologies of Industry 4.0 and the new concepts of the smart factory, and the transfer of knowledge and competences to students of mechanical engineering and especially to industrial partners. The most important segment of research in smart factories are digital twins of manufacturing and logistics processes and systems, and digital twins supported by artificial intelligence, machine vision, Big data, etc. The concept of a smart factory also includes knowledge and competences from laser fields, laser technologies, hydraulic and pneumatic systems and controls as well as manufacturing technologies.

UL, FS - Laboratorij LASIM



FS

UNIVERZA V LJUBLJANI
Fakulteta za strojništvo

LASIM
LABORATORIJ ZA STREGO, MONTAŽO IN PNEVMATIKO

Univerza v Ljubljani
Fakulteta za strojništvo
Laboratorij LASIM
University of Ljubljana
Faculty of Mechanical Engineering
Laboratory LASIM
Aškerčeva cesta 6
1000 Ljubljana
Slovenija, EU



Demonstracijski center Pametna tovarna Na osnovi lastnega arhitekturnega modela LASFA in s pomembnejšimi ključnimi Tehnologijami (distribuirani sistemi, digitalni dvojčki, digitalni agenti z AI, strojni vid, RFID, kolaborativni robot, VR, AR, pametno ročno mesto...)

Demonstration Center of the Smart factory based on its own architectural model LASFA and with major key technologies (distributed systems, digital twins, digital agents with AI, machine vision, RFID, collaborative robot, VR, AR, smart manual workstation...).

Na Fakulteti za strojništvo Univerze v Ljubljani smo v **Laboratoriju za strego, montažo in pnevmatiko – LASIM** razvili in postavili demonstracijski center Pametna tovarna, ki je namenjen v prvi vrsti raziskavam in razvoju obstoječih, predvsem pa novih tehnologij I4.0 in novih konceptov pametne tovarne ter prenosu znanj in kompetenc študentom strojništva, še posebej pa industrijskim partnerjem.

Demonstracijski center je zgrajen v skladu z lastno razvitim arhitekturnim modelom LASFA in temelji na konceptu distribuiranih sistemov. Vključuje ključne tehnologije I4.0, ki so nujno potrebne za delovanje pametne tovarne. Hrbtenico pametne tovarne predstavljata globalni digitalni dvojček in globalni digitalni agent oz. umetna inteligenca, podprta s strojnim vidom. Ob tem ima vsak proces in sistem svojega digitalnega dvojčka in digitalne agente, ki ob podpori umetne inteligence samodejno krmilijo proizvodne in logistične procese, kakor tudi navezave na celotno dobaviljsko verigo. Probleme rešujejo samodejno na lokalni ravni, vsi procesi in aktivnosti pa so vizualizirani in transparentni. RFID tehnologija omogoča sledljivost procesov in sistemov in komunikacijo med objekti in subjekti pametne tovarne. Poleg robotiziranih procesov je v demo center vključeno tudi pametno ročno delovno mesto vključno s tehnologijami kot so VR in AR, digitalizacija in transparentnost navodil za montažne operacije, prilagodljivost montažnih mest in zalogovnikov ter ergonomija delovnega mesta z vnaprejšnjo simulacijo človeka. Pametna tovarna v demo okolju omogoča na ta način popolnoma fleksibilno in agilno ter samodejno planiranje in optimiranje delovnega plana ter proizvodnega procesa.

*At the Faculty of Mechanical Engineering, University of Ljubljana, in the **Laboratory for handling, Assembly and Pneumatics - LASIM**, we developed and installed a demonstration center Smart Factory, which is primarily aimed at researching and developing existing and, above all, new I4.0 technologies and new concepts of the smart factory and transfer of knowledge and competences to students of mechanical engineering, and especially to industrial partners.*

The demonstration center is built according to our own developed architectural model LASFA and is based on the concept of distributed systems. It includes key I4.0 technologies that are essential for the operation of a smart factory. The backbone of the smart factory is the global digital twin and global digital agent or artificial intelligence, supported by machine vision. In addition, every process and system has separate digital twins and digital agents, which, with the support of artificial intelligence, automatically control the production and logistic processes as well as links to the entire supply chain. Problems are solved automatically at the local level, and all processes and activities are visualized and transparent. RFID technology enables traceability of processes and systems and communication between objects and subjects of a smart factory. In addition to robotized processes, the demo center also includes a smart manual assembly station including technologies such as VR and AR, digitalization and transparency of instructions for assembly operations, adaptability of assembly station and buffers as well as ergonomics of the workplace with advanced human simulation. The smart factory in the demo environment allows in this way fully flexible and agile as well as automatic planning and optimization of the work plan and the production process.

UL, FS - Laboratorij FOLAS



FS

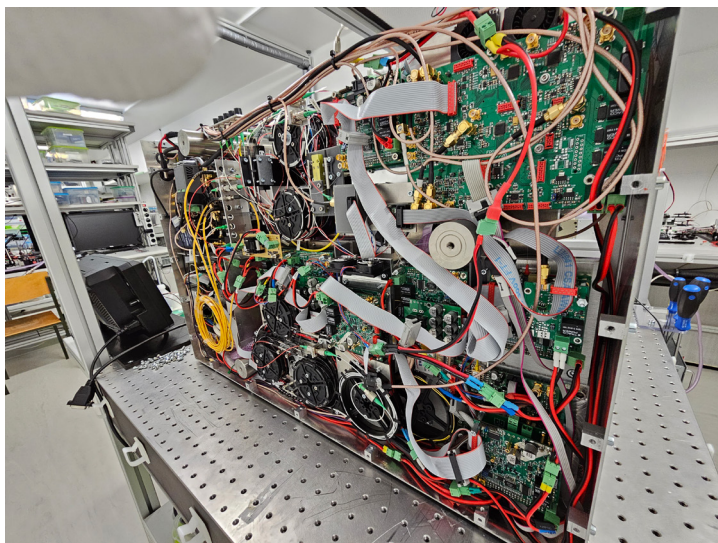
UNIVERZA V LJUBLJANI
Fakulteta za strojništvo

FOLAS
Laboratory for photonics and laser systems

Univerza v Ljubljani
Fakulteta za strojništvo
Laboratorij za fotoniko in laserske sisteme (FOLAS)
University of Ljubljana
Faculty of Mechanical Engineering
Laboratory for Photonics and Laser Systems (FOLAS)

Aškarčeva 6
1000 Ljubljana
Slovenija, EU

Prof. dr. Rok Petkovšek
+386 (0)1 4771 615
rok.petkovsek@fs.uni-lj.si



Laboratorij za fotoniko in laserske sisteme (FOLAS) je bil ustanovljen na pobudo slovenskih proizvajalcev laserskih sistemov in deluje na Fakulteti za strojništvo, Univerze v Ljubljani. Večina raziskav poteka v tesnem sodelovanju z industrijskimi partnerji. Znanstveno raziskovalno področje laboratorija se nanaša predvsem na visoko prilagodljive oziroma posebno prilagojene laserske sisteme za nišne aplikacije. Prav tako se ukvarjamo z uporabo laserjev predvsem v posebnih aplikacijah v industriji, raziskavah, medicini in nekaterih drugih področjih. V navedenih primerih gre za raziskave in razvoj laserskih sistemov, ki delujejo v načinu laserskih pulzov na zahtevo oziroma v načinu parametrov laserskih pulzov na zahtevo, kar omogoča natančno digitalno kontrolirano dovajanje energije iz laserskih izvorov. Tako na primer v laboratoriju FOLAS potekajo raziskave in razvoj laserskih sistemov z zelo širokim modulacijskim območjem izhodne moči, ki omogoča visoko hitrost premikanja laserskega snopa po vzorcu (velikostnega reda km/s) ter hkrati zagotavlja visoko prostorsko natančnost dovajanja energije. Pomemben primer predstavlja tudi visoko prilagodljiv laserski izvor z ultrakratkimi izhodnimi laserski pulzi ter načinom delovanja, ki omogoča generiranje laserskih pulzov na zahtevo in hkrati z izhodom, ki vsebuje več neodvisnih kanalov. Na medicinskem področju se aktivnosti nanašajo na raziskave in razvoj konceptov multifunkcionalnih laserskih izvorov, ki v kombinaciji z naprednimi nadzornimi sistemi omogočajo hkratno diagnostično in terapevtsko delovanje. Poleg tega se aktivnosti laboratorija nanašajo tudi na raziskave laserskih sistemov za osvetljevanje za različne tehnike slikanja (ultra hitro slikanje, slikanje mimo optičnih ovir, laserske komunikacije,...).

The Laboratory for Photonics and Laser Systems (FOLAS) was established at the initiative of Slovenian laser system manufacturers and operates within the Faculty of Mechanical Engineering, University of Ljubljana. Most research is conducted in close collaboration with industrial partners. The scientific research focus of the laboratory primarily concerns highly adaptable or specially tailored laser systems for niche applications. We also focus on the use of lasers, particularly in specialized applications in industry, research, medicine, and other fields. In these cases, the research and development of laser systems are centered around systems that operate in pulse-on-demand mode or pulse parameter-on-demand mode, enabling precise digitally controlled energy delivery from laser sources. For example, in the FOLAS laboratory, research and development are being conducted on laser systems with a very wide modulation bandwidth of output power, allowing for high-speed movement of the laser beam over the sample (in the order of km/s) while simultaneously ensuring high spatial precision in energy delivery. An important example is a highly adaptable laser source with ultrashort output laser pulses and a mode of operation that enables pulse-on-demand generation, along with an output that contains multiple independent channels. In the medical field, activities focus on research and development of concepts for multifunctional laser sources, which, in combination with advanced control systems, enable simultaneous diagnostic and therapeutic operations. In addition, the laboratory's activities also include research on laser systems for illumination in various imaging techniques (ultrafast imaging, non-line of sight imaging, laser-based communications, etc.).

UL, FS - Laboratorij LASTEH

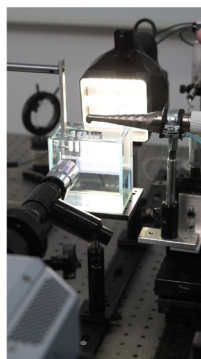
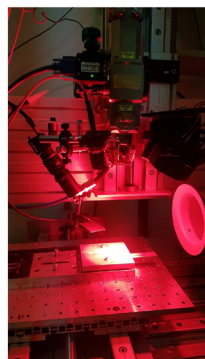


FS

UNIVERZA V LJUBLJANI
Fakulteta za strojništvo



Univerza v Ljubljani
Fakulteta za strojništvo
Laboratorij za lasersko tehniko (LASTEH)
University of Ljubljana
Faculty of Mechanical Engineering
Laboratory for Laser Techniques (LASTEH)
Aškarčeva 6
1000 Ljubljana
Slovenija, EU



Oprema za raziskave laserskega mikroprocesiranja, laserskega daljinskega varjenja in laserske tvorbe kavitacije v simuliranih zobnih koreninskih kanalih.
Equipment for the investigation of laser micromachining, remote laser welding and laser cavitation in simulated dental root canals.

Prof. dr. Matija Jezeršek
+386 (0)1 4771 607
matija.jezersek@fs.uni-lj.si

Ustvarjamo in prenašamo znanje s področja laserskih tehnologij, sistemov in procesov v prvi vrsti študentom in industrijskim partnerjem, s čimer omogočamo njihovo strokovno rast in zviševanje konkurenčnosti.

Strateško raziskovalno področje laboratorija je Optodinamika, kjer obravnavamo dinamske vidike interakcije laserske svetlobe in snovi. Ker so ti pojavi ključnega pomena tako pri laserskih obdelavah, kot pri laserskih medicinskih terapijah, je njihovo razumevanje in spremljanje pomembno za njihovo optimizacijo in krmiljenje. V tem okviru razvijamo inovativne metode fotoakustike, laserskega prenosa snovi, manipulacije nano in mikrodlecev, lasersko povzročene kavitacije, laserskega mikro- in nanoproceniranja in obdelave naprednih materialov. Razvijamo laserske merilne metode za 3D merjenje oblike teles in spremljanje hitrih pojavov, kakršni so značilni med laserskim procesiranjem.

PROIZVODI / STORITVE:

Raziskave in razvoj inovativnih obdelovalnih tehnologij, medicinskih posegov in merilnih metod. Med pomembnejše sodijo:

- Lasersko mikro- in nanostrukturiranje površin
- Lasersko varjenje, rezanje, vrtnanje in čiščenje
- Robotizacija laserskih procesov
- Interferometrija,
- Hitra fotografija,
- Laserska 3D metrologija,
- Fotoakustika,
- Lasersko vzbujena kavitacija

We create and transfer knowledge in the field of laser technologies, systems and processes, primarily to students and industrial partners, enabling their professional growth and increased competitiveness.

The strategic research area of the laboratory is optodynamics, where we deal with the dynamic aspects of the interaction of laser light and matter. As these phenomena are crucial in both laser treatments and medical laser therapies, their understanding and monitoring is important for their optimization and control. In this context, we develop innovative methods of photoacoustics, laser transfer of matter, manipulation of nano- and microparticles, laser-induced cavitation, laser micro- and nano-machining and advanced materials processing. We develop laser measurement methods for the 3D measurement of the shape of bodies and the monitoring of rapid phenomena typical of laser processing.

PRODUCTS & SERVICES

Research and development of innovative processing technologies, medical procedures and measurement methods. Among the more important are:

- Laser micro- and nanostructuring of surfaces
- Laser welding, cutting, drilling and cleaning
- Robotization of laser processes
- Interferometry,
- High-speed photography,
- Laser based 3D metrology,
- Photoacoustic,
- Laser induced cavitation

UL, FS - Laboratorij LAMPA



Univerza v Ljubljani
Fakulteta za strojništvo
Laboratorij za mehatroniko, proizvodne
sisteme in avtomatizacijo (LAMPA)
Aškerčeva 6
1000 Ljubljana
Slovenija, EU



testiranje robotskih roverjev za
vesoljske aplikacije (ESA projekt)

doc. dr. Rok Vrabič
rok.vrabic@fs.uni-lj.si

LAMPA (Laboratorij za mehatroniko, proizvodne sisteme in avtomatizacijo) je raziskovalni laboratorij, specializiran za mehatroniko, avtomatizacijo in robotiko v proizvodnih sistemih. Ključna področja laboratorija so porazdeljeni krmilni sistemi, avtomatizacija meritev in napredne robotske aplikacije, s posebnim poudarkom na mobilni robotiki in integraciji umetne inteligence v proizvodne procese.

Naše raziskovalne dejavnosti obsegajo:

- Umetno inteligenco v proizvodnih procesih
- Strojno učenje za modeliranje in napovedovanje procesov
- Računalniški vid in sisteme vizualne kontrole
- Mobilno robotiko in avtonomne sisteme
- Pametno proizvodnjo in tehnologije Industrije 4.0
- Avtomatizacijo in vodenje procesov
- Digitalne dvojčke in simulacije

Laboratorij vzdržuje močno mednarodno sodelovanje preko različnih evropskih projektov, vključno z ESA, ERASMUS+ in H2020 pobudami.

PROIZVODI / STORITVE:

- Razvoj rešitev na osnovi umetne inteligence za proizvodne procese
- Implementacija algoritmov strojnega učenja za optimizacijo procesov
- Načrtovanje in razvoj sistemov vizualne kontrole
- Rešitve mobilne robotike in avtonomne navigacije
- Načrtovanje sistemov za avtomatizacijo in vodenje procesov
- Tehnično svetovanje na področju avtomatizacije in robotike
- Razvoj prilagojenih rešitev za proizvodne izzive
- Optimizacija procesov in izboljšanje kakovosti
- Študije izvedljivosti in razvoj prototipnih rešitev
- Napredna usposabljanja na področju robotike in avtomatizacije
- Delavnice o umetni inteligenci in strojnem učenju v proizvodnji

LAMPA (Laboratory for Mechatronics, Production Systems, and Automation) is a research laboratory specializing in mechatronics, automation, and robotics in manufacturing systems. The lab's core expertise lies in distributed control systems, measurement automation, and advanced robotics applications, with a particular focus on mobile robotics and artificial intelligence integration in manufacturing processes.

Our research activities encompass:

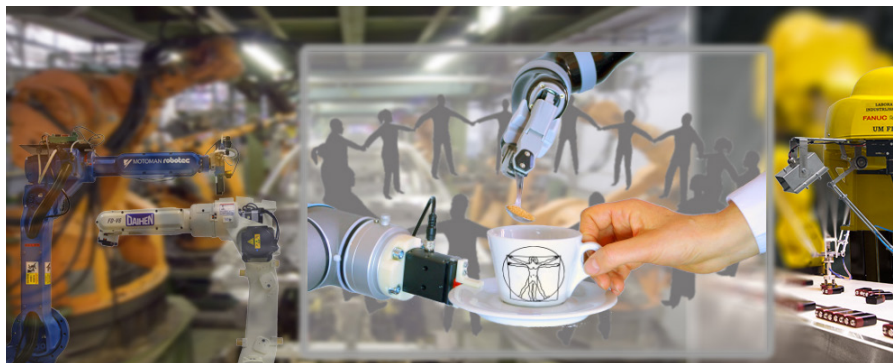
- Artificial Intelligence in manufacturing processes
- Machine learning for process modeling and prediction
- Computer vision and visual inspection systems
- Mobile robotics and autonomous systems
- Smart manufacturing and Industry 4.0 technologies
- Process automation and control
- Digital twins and simulation

The laboratory maintains strong international collaboration through various European projects, including ESA, ERASMUS+, and H2020 initiatives.

PRODUCTS & SERVICES:

- Development of AI-based solutions for manufacturing processes
- Implementation of machine learning algorithms for process optimization
- Design and development of visual inspection systems
- Mobile robotics solutions and autonomous navigation systems
- Process automation and control system design
- Technical consulting in automation and robotics
- Custom solution development for manufacturing challenges
- Process optimization and quality improvement
- Feasibility studies and proof-of-concept development
- Advanced training in robotics and automation
- Workshops on AI and machine learning in manufacturing

UM FERI - Inštitut za robotiko



Industrijska robotizacija se intenzivno modernizira - v tovarnah prihodnosti bosta človek in robot sodelovala z roko v roki

Univerza v Mariboru
Fakulteta za elektrotehniko,
računalništvo in informatiko
Inštitut za robotiko
University of Maribor
Faculty of Electrical Engineering and
Computer Science
Institute of Robotics
Koroška cesta 46
2000 Maribor
Slovenija, EU
www.iro.feri.um.si

Inštitut za robotiko na UM-FERI se sestoji iz treh laboratorijev, t.j. Laboratorij za industrijsko robotiko, Laboratorij za kognitivne sisteme v mehatroniki in Laboratorij za energetske elektrone, v okviru katerih izvajamo širok spekter razvojno raziskovalnih dejavnosti na naslednjih področjih: robotski sistemi, inteligentni mehatronski sistemi, robotizacija in avtomatizacija proizvodnje ter sistemi močnostne elektronike s poudarkom na servo-pogonih. Posebej lahko izpostavimo naše raziskovalne aktivnosti glede naprednih algoritmov za vodenje robotskih in mehatronskih sistemov.

V zadnjem desetletju se v Lab. za industrijsko robotiko še posebej posvečamo področju kolaborativne robotike, kjer si človek in robot lahko delita skupni delovni prostor in varno sodelujeta pri izvedbi delovnih operacij v neograjeni delovni celici. Naše raziskave so usmerjene tudi v razvoj spremljajočih tehnologij kolaborativne robotike, ki bodo omogočale višjo stopnjo fleksibilnosti, adaptivnosti in produktivnosti kolaborativnih robotskih aplikacij. Izkušnje pa imamo tudi z razvojem uporabniških vmesnikov z obogateno in mešano resničnostjo za intuitivno komunikacijo in interakcijo z robotskim sistemom.

PROIZVODI / STORITVE:

V našem laboratoriju izobražujemo iz področja industrijske robotike. Svetujemo lahko pri razvoju kolaborativnih robotskih aplikacij. Podjetja lahko pri nas preizkusijo svoje lastne ideje aplikacij s kolaborativnimi roboti Universal Robots. Ponujamo tudi razvojne storitve na področju praktičnih kolaborativnih robotskih aplikacij v industrijskih in neindustrijskih okoljih.

***The Institute of Robotics at UM-FERI** consists of three laboratories, i.e. the Laboratory for Industrial Robotics, the Laboratory for Cognitive Systems in Mechatronics, and the Laboratory for Power Electronics, which pursue a wide range of research and development activities in the following areas: robotic systems, intelligent mechatronic systems, robotization and automation of manufacturing processes, and power electronics systems with an emphasis on servo drives. We can highlight our research activities regarding advanced control algorithms of robotic and mechatronic systems.*

In the last decade, the lab for industrial robotics has been mainly concerned with collaborative robotics, where a human and a robot can share a common workspace and safely cooperate in performing work operations in a fenceless work cell. Our recent research activities are oriented toward supporting technologies enabling greater flexibility, adaptivity, and productivity of collaborative robotic applications. We also have experience developing user interfaces with augmented and mixed reality for intuitive communication and interaction with a robotic system.

PRODUCTS & SERVICES

In our laboratory, we provide education in the field of industrial robotics. We also consult in the development of collaborative robotic applications. Companies may test their ideas of applications with UR collaborative robots in our lab as well. We can help in the development of practical collaborative applications for manufacturing and non-manufacturing environments.

UM - Inštitut za avtomatiko

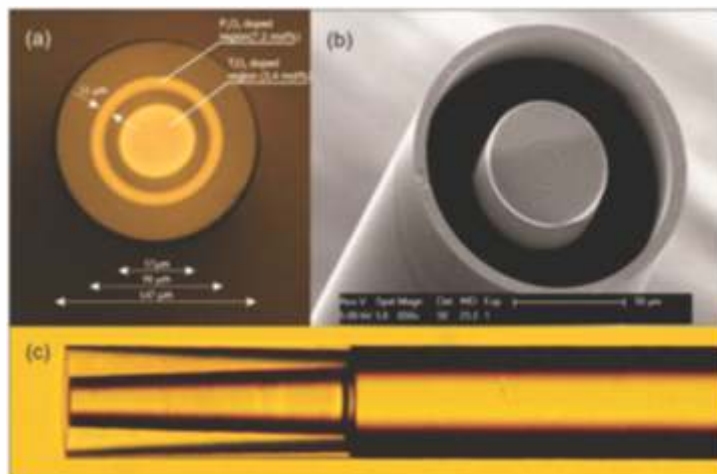


Univerza v Mariboru

Fakulteta za elektrotehniko,
računalništvo in informatiko

Univerza v Mariboru
Fakulteta za elektrotehniko,
računalništvo in informatiko
Inštitut za avtomatiko
University of Maribor
Faculty of Electrical Engineering
and Computer Science
Institute of Automation
Koroška cesta 46
2000 Maribor
Slovenija, EU

www.au.feri.um.si



Miniaturen optičen vlakenski senzor za merjenje raztezkov in z raztezki povezanih veličin (sil, deformacij, navorov, itd.). Dimenzije so približno 125 μm premer in dolžina 400 μm . Senzor je izdelan z lastno tehnologijo za mikro-obdelavo optičnih vlaken, razvito v sodelovanju s podjetjem Optacore (sedaj del Lumentum).

Inštitut za avtomatiko kot samostojna raziskovalno-izobraževalna enota s svojim delovanjem pokriva celotno področje avtomatike v elektrotehniki. Sestavljajo ga trije laboratoriji: Laboratorij za elektro-optične in senzorske sisteme, Laboratorij za procesno avtomatizacijo in Laboratorij za obdelavo signalov in daljinska vodenja. Raziskovalno delo poteka na naslednjih področjih: meroslovje, senzorji in senzorski sistemi, posebej optični senzorji, sistemi daljinskega vodenja, daljinsko zaznavanje, opto-elektronski in fotoniki sistemi, optična vlakna, regulacijska teorija, posebej robustne regulacije in vodenje z umetno inteligenco. Člani inštituta so avtorji ali soavtorji več kot 15 ameriških patentov na področjih optičnih vlaken in optičnih senzorjev. Razvijamo algoritme, ki temeljijo na napredni obdelavi signalov za obdelavo satelitskih radarskih posnetkov, radarskih sistemov na tleh in sistemov strojnega vida. Uporabljamo tehnike nadzorovanega učenja s katerimi lahko analiziramo vsebino podatkov in iz njih izločamo koristne informacije. Prav tako se ukvarjamo s porazdeljenim daljinskim vodenjem. Razvijamo algoritme na osnovi teorije robustnega vodenja in mehke logike, ki jih prenašamo v procesno avtomatizacijo. Glavna aktivnost Inštituta za avtomatiko je raziskovalna dejavnost na širokem področju avtomatike v elektrotehniki, ki jo lahko strnemo v naslednje točke:

- sodelovanje z industrijo in udeležba pri industrijskih raziskavah (Laboratoriji Inštituta za avtomatiko vzdržujejo kontakte z večino slovenskih podjetij, ki so aktivna na področju avtomatike, prav tako pa sodelujemo z več tujimi podjetji),
- s projektnim sodelovanjem prenašati znanje in izkušnje ter hkrati spletati vezi s strokovnjaki iz našega področja doma in v tujini,
- z raziskovalnim delom pridobljeno znanje prenašati v pedagoške programe in širiti bazo visoko kvalificiranega strokovnega kadra.

Institute of Automation as an independent research and educational unit at FERI UM with its operation covers the entire area of automation in electrical engineering. It consists of three laboratories: Laboratory for Electro Optics and Sensor Systems, Laboratory for Process Automation, and Laboratory for Signal Processing and Remote Control. The Institute of Automation conducts education in the fields of measurements, sensors, remote control, signal processing, system theory, control systems, modelling, artificial intelligence, identifications, opto-electronics/photonics, etc. Institute members have authored or co-authored more than 15 US patents in the fields of optical fibers and optical sensors. Algorithms, based on advanced signal processing have been developed for the processing of satellite radar data, ground radar data and systems of machine vision. Several technologies based on supervised learning are used for information extraction and data understanding. The principles of distributed remote control, robust control theory and Fuzzy logic have been intensively studied over the past few decades and developed algorithms have been successfully implemented in process automation. Main activities of the Institute of Automation are research on all areas of industrial automation which can be summarized in following points:

- cooperation with industry and participating in the industrial research (Institute of automation continuously cooperate with majority of Slovenian and also foreign companies that are active in the field of automation),
- transferring knowledge and experience through industrial projects and at the same time concluding new contacts with professionals from Slovenia and abroad,
- through educational programs transmit the knowledge to the new generations of students and expands the base of high qualified technical staff.

Zavod KC STV



Kompetenčni center za sodobne tehnologije vodenja (KCSTV)

Competence Centre for Advanced Control Technologies

Zavod KC STV

CC ACT

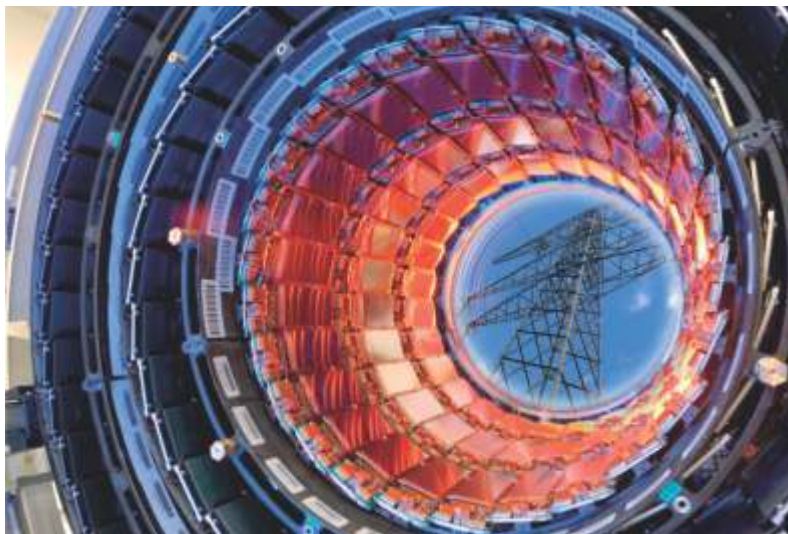
Tehnološki park 18

1000 Ljubljana

Slovenija, EU

info@kcstv.si

www.kcstv.si



Zavod KCSTV so ustanovila podjetja konzorcija tehnološke mreže Tehnologija vodenja procesov. Povezuje javne raziskovalne institucije ter podjetja pri prenosu znanja in tehnologij v industrijo. Obenem pomaga pri razvoju produktov in storitev za prodajo na trgu.

Področje delovanja KCSTV obsega celotno piramido vodenja procesov v podjetju, zajema pa tudi sisteme vodenja na drugih področjih kot so energetika, promet, varovanje okolja in podobno.

KCSTV je v okviru Strateškega razvojno-inovacijskega partnerstva »Tovarne prihodnosti« izvajalec načrta za vertikalno verigo vrednosti »Inteligentni sistemi vodenja za tovarne prihodnosti« in horizontalno mrežo »Tehnologija vodenja«.

Prioritetna tehnološka področja inteligentni sistemi vodenja za tovarne prihodnosti.

- Inteligentni sistemi za upravljanje proizvodnih operacij (MES – MOM),
- Diagnostika, prognostika in samo-vzdrževanje pametnih strojev in procesov,
- Razvoj sodobnih orodij in gradnikov za vodenje in nadzor sistemov ter procesov,
- Distribuirani sistemi vodenja in IoT,
- Pametni akuatorji,
- Energetika v tovarnah prihodnosti.

Tehnologija vodenja.

Kot horizontalna tehnologija, ki obsega avtomatizacijo, informatizacijo in kibernetizacijo, se vključuje v tehnološka področja tudi v drugih Strateških razvojno-inovacijskih partnerstvih, zlasti v Pametna mesta in skupnosti, Pametne zgradbe in dom in Krožno gospodarstvo.

The **Competence Centre for Advanced Control Technologies (CC ACT)** was founded by the companies within the consortium of the technology network Process Control Technology (PCT). The centre links public research institutions and companies in transferring knowledge and technology to industry, as well as helps in developing products and services for sale in the market. The scope of CC ACT is to cover the entire process control pyramid in the company. It also focuses on control systems in other areas such as energy, transport, environmental protection and others. CC ACT is one of the leading partners of the Strategic Research and Innovation Partnership of the Factories of the Future responsible for the development and implementation of action plans in the focus area Intelligent control systems and horizontal network Control technology.

Intelligent control systems for the Factories of the Future.

- Smart Manufacturing Execution Systems and Manufacturing Operations Management (MES - MOM),
- Diagnostics, prognostics and self-maintenance of smart machines and processes,
- Development of modern tools and building blocks for control and supervision of systems and processes,
- Distributed control systems and internet of things (IoT),
- Smart actuators,
- The energy in the factories of the future.

Control technology horizontal network.

As a horizontal technology encompassing automation, informatization and cybernetization, control technology is also integrated into technology areas in other Strategic Research and Innovation Partnerships, notably Smart Cities and Communities, Smart Buildings and Homes and the Networks for the Transition to Circular Economy.



Inštitut "Jožef Stefan", fotografija: Arne Hodalič / Jožef Stefan Institute, photo: Arne Hodalič

SRIPToP - KATALOG ČLANOV 2025
SRIPFoF - MEMBERS GUIDE 2025

Institut „Jožef Stefan“, Center ToP / *Jožef Stefan Institute, FoF Centre*

marec 2025 / *March 2025*

