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# *Building blocks, tools and systems for the FoF*

# GOSTOP

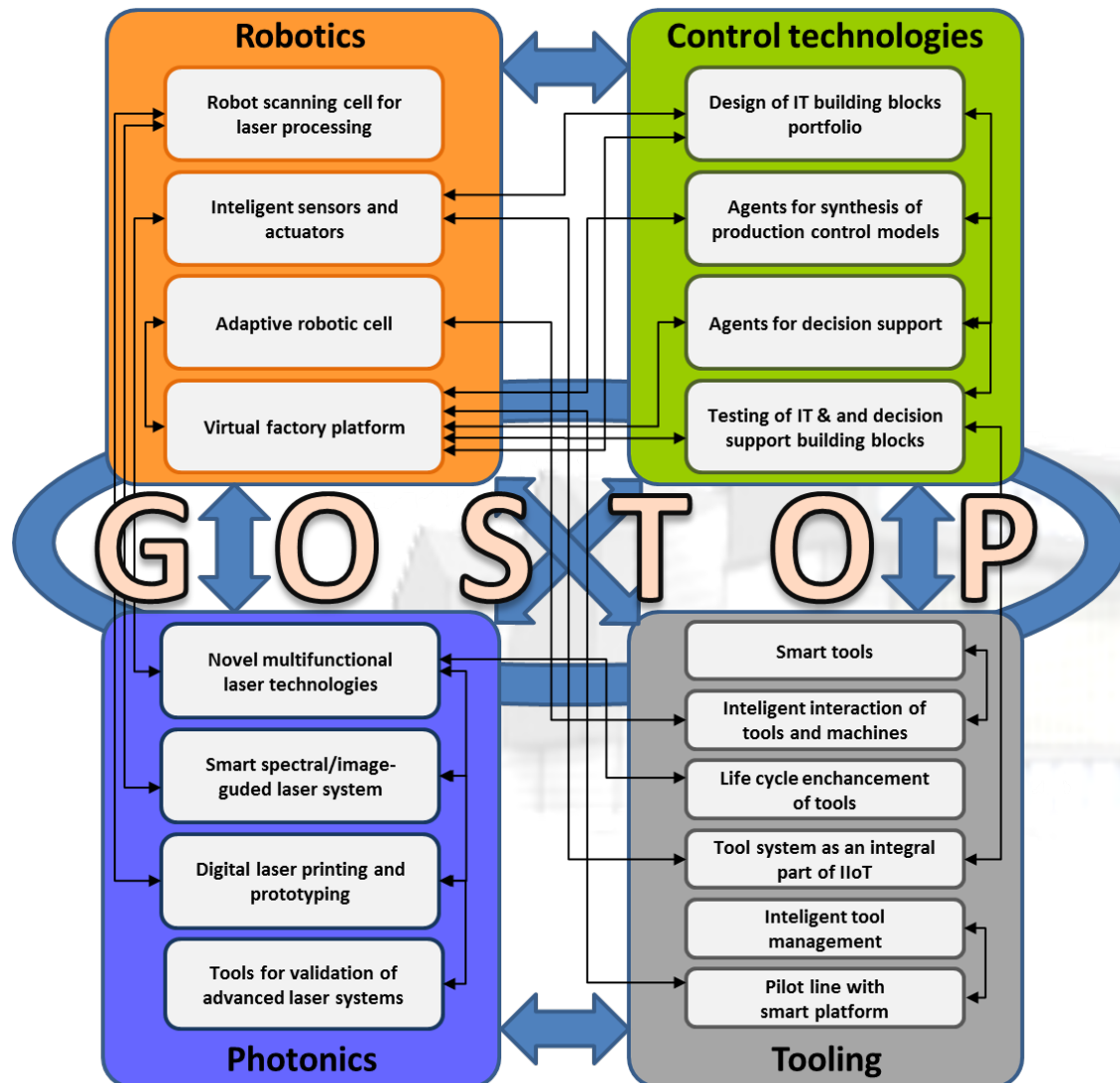
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Igor Kovač



*The investment is co-financed by the European Union from the European Regional Development Fund and the Republic of Slovenia.*

# FoF Program: GOSTOP



List of partners

Partner No. <sup>1</sup>	Name of the partner organization	Short name of the partner organization (code) <sup>2</sup>
1. (coordinator)	Institute "Jožef Stefan"	IJS
2.	University of Ljubljana, Faculty of Electrical Engineering	FE
3.	University of Ljubljana, Faculty of Mechanical Engineering	FS
4.	University of Ljubljana, Faculty of Computer and Information Science	FRI
5.	University of Maribor, Faculty of Electrical Engineering and Computer Science	FERI
6.	Slovenian Tool and Die Development Centre	TECOS
7.	Kolektor Group d.o.o.	KOLEKTOR
8.	INEA d.o.o.	INEA
9.	METRONIK d.o.o.	METRONIK
10.	HIDRIA ROTOMATIKA d.o.o.	HIDRIA
11.	YASKAWA Slovenija d.o.o.	YASKAWA
12.	PODKRIŽNIK d.o.o.	PODKRIZNIK
13.	NELA, research centre d.o.o.	NELA
14.	COSYLAB d.d.	COSYLAB
15.	L-TEK d.o.o.	L-TEK
16.	ŠPICA INTERNATIONAL d.o.o.	SPICA
17.	OPTOTEK d.o.o.	OPTOTEK
18.	LPKF d.o.o.	LPKF
19.	FOTONA d.o.o.	FOTONA

Value of the Program: app. 9,4 Mio EUR

Co-financing: app. 5,95 Mio EUR

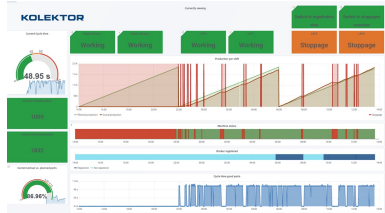
Duration: 1.11.2016 – 30.06.2020

# Highlights – Control Technologies

**MES Plugin for  
Analyse and  
Optimization of  
Production**



**Sinapro.IIoT**



**KOLEKTOR**

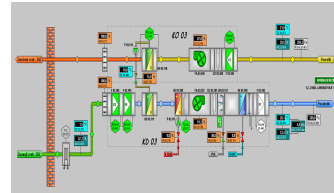
Marko.mandelj@kolektor.com

**Data Gateway  
between  
Remote  
Device and  
Control  
Centre**



Igor.steiner@inea.si

**Smart Sensor  
Design  
Plattform**



**METRONIK**

Aljaz.stare@metronik.si

**IoT Sensors  
Based on  
Visual-voice  
Technology**



**spica**

Ales.habic@spica.com

**A Tool for  
Analysing the  
Effects on the  
Final Quality  
of Products**



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

Miha.glavan@ijs.si

**Multi - Agent  
System for  
Controlling an  
Industrial  
Compressed  
Air System**



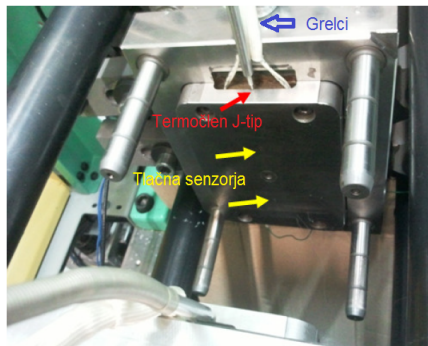
Univerza v Ljubljani  
Fakulteta za strojništvo



Rok.vrabcic@fs.uni-lj.si

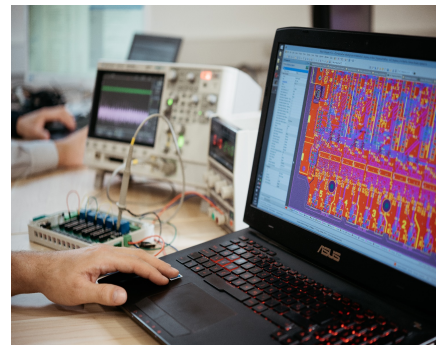
# Highlights – Tooling

## Smart Tools for Pressure Die Casting and Plastic Injection Moulding



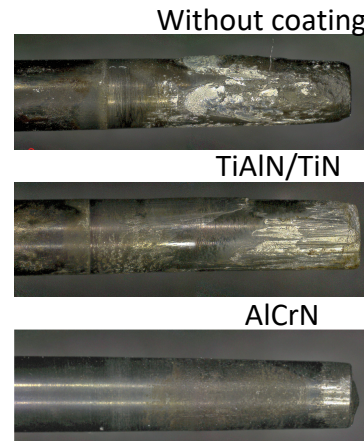
Dragan.kusic@tecoss.si

## Integrated Interface for Acoustic Control of Injection Moulding and Die Casting Processes



Dragan.kusic@tecoss.si

## Advanced hard coatings

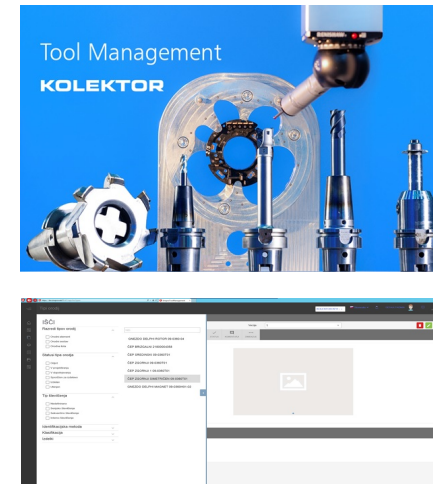


Pins after production  
(similar number of  
manufactured pieces)



Miha.cekada@ijs.si

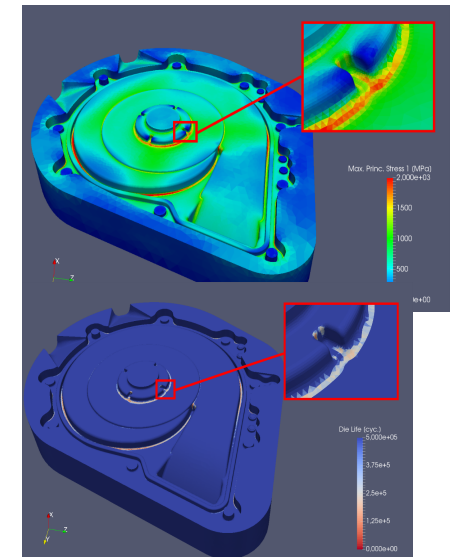
## IIoT Smart MES – Tool Management



**KOLEKTOR**

Marko.mandelj@kolektor.com

## Software for Predicting the Life-time of the Die Casting Tools

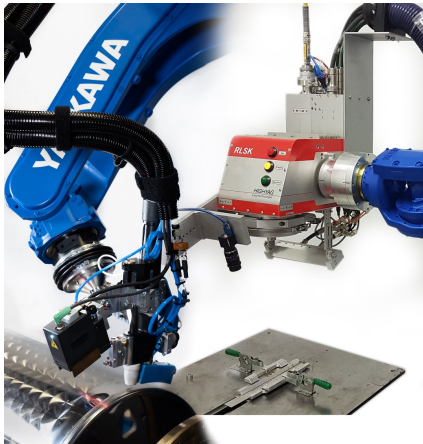


Tadej.hohnjec@hidria.com



# Highlights – Robotics

MOTOSense  
Platform for  
**Adaptive Control of  
Robotic Machining**  
using Laser  
Triangulation



**YASKAWA**

Erih.arko@yaskawa.eu.com

**Intelligent  
Integrated Drive  
System**



Moment sensing and  
predictable maintenance  
included.



Simon.kulovec@podkriznik.si

**Adaptive Robotic Cell**



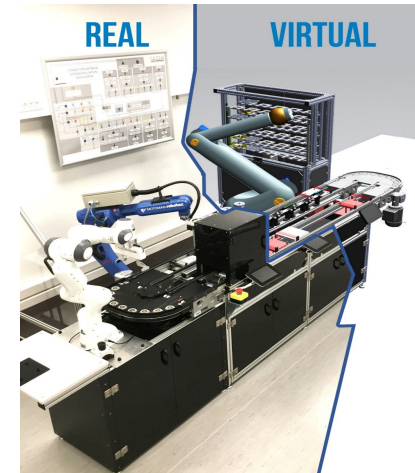
Automation of existing  
measurements, ensuring adequate  
product quality, optimality of the  
manufacturing process.

Univerza v Ljubljani  
Fakulteta *za elektrotehniko*



Marko.munih@fe.uni-lj.si

Demonstration of  
the **Digital Agents**  
for Automatic  
**Optimization of the  
Production Process**



Univerza v Ljubljani  
Fakulteta *za strojništvo*



Hugo.zupan@fs.uni-lj.si

Modular  
Software  
Platform for  
**Optical  
Inspection of  
Products**



**KOLEKTOR**

Jure.skvarc@kolektor.com

# Highlights – Photonics

## Alexandrite Laser with ILOOP Scanning System



Accurate and Effective  
Medical Dermatological  
Procedures.

**Fotona**  
choose perfection

Nejc.lukac@fotona.com

## Sub Nanosecond MOPA Laser System

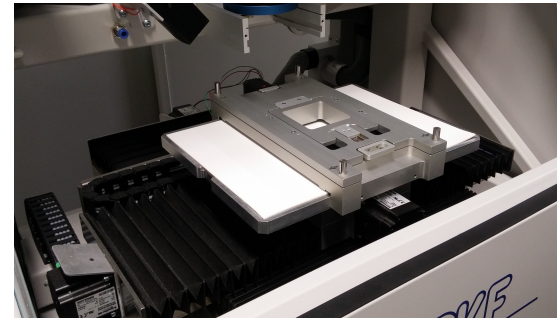


Removal of Pigment  
Lesions and Skin  
Rejuvenation.

**Fotona**  
choose perfection

Dejan.skrabelj@fotona.com

## Laser Transfer Printing Prototype



Printing Process of  
Different High Viscose  
Donor Pastes and Inks.

**LPKF**  
Laser & Electronics

Bostjan.podobnik@lpkf.com

## Smart YAG System



Upgrade in  
Ophthalmologic Systems  
for YAG Capsulotomy.

**OPTOTEK**  
medical

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

Janez.strancar@ijs.si

# Program GOSTOP: Exposed results

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- The interconnection of key enabling technologies, recognized in Slovenia as breakthroughs (S4).
- Effective link between research institutions and industry in Slovenia.
- Establishing new partnerships in the form of research and commercial links.
- Synergy of excellent research competences, capacities and investments by the state (TRL 3-6).
- Expected continuity is needed but missed.

# Program GOSTOP: Experiences

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- **Benefits of large programs (TRL 3-6):**
  - interlinking of key enabling technologies in cooperation with **research institutions** and **industry** by “**push-pull**” system, with strong state participation.
- **Achieving promising results:**
  - involvement of the **whole chain from basic research** through development and experiments **to a product, service or technology**,
  - excellent **knowledge**, involvement of **talents**, experienced **staff** and updated **research equipment**.
- **Positive response from Slovenian industry to research work and their networking with research institutions.**



**Thank You for your attention!**

*Ass. Prof. Dr. Igor Kovač*