Interreg CENTRAL EUROPE
European Union European Regional Development Fund

CHAIN REACTIONS

WPT4

D.T4.1.17

Industrial innovation workshop for the ICT and Electronics sector in the region of Croatia

Version 1
09.2021

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1 INTRODUCTION

Following the regional IGAs' actions of the support and implementation of transnational pilots aiming at supporting value chain innovation (WPT3) and establishment of transnational networks of innovations stakeholders as the kick-off activity to develop transregional innovation networks and agendas (WPT4) in selected industrial sectors (WPT4), the main activity of project partners is to regionally contribute to the project outputs O.T4.1 Thematic industrial innovation roadmaps (TIIR) and O.T4.2 Thematic innovation agendas (TIIA).

For the purposes of TIIR and TIIA development regional analyses for defined priority target sectors will be elaborated and presented (discussed) at the integral regional workshop, with the main objective to collect relevant inputs for elaboration of sectoral TIIRs and TIIAs. Each of the TIIR shall be turned into TIIA, which provide an overview of the developments and innovation support activities necessary on regional as well as transnational level in order to enable the developments identified in the roadmaps to happen in the project regions and thus contribute to increase their industrial leadership in the selected sectors.

2 WORKSHOP SUMMARY

Ref.:	☐	Meeting / workshop	☐	WPT2
	☒	Online meeting / workshop	☐	WPT3
	☐	Other	☒	WPT4
Date:	03.09.2021.			
Place:	On-line (Microsoft Teams)			
Attachments:	Screenshots			

2.1 Agenda

The agenda of the workshop is as follows:

1. Welcome speech and presentation of the CHAIN REACTIONS project and the partner network (CCE-ZCC)
2. "IT and how to use it" (Lecturer: Ivan Lupić, President of the Croatian Competitiveness Cluster of the ICT Industry)
3. Discussion - Importance of ICT in other sectors
4. "Building a StartUp Ecosystem in the Age of Industry 4.0" (prof.dr.sc. Nedeljko Štefanić, Culmena d.o.o.)
5. Discussion - Croatia's readiness for industrial change (smart factories)
6. "Computing and Neuroscience - From Research to Application" (Lecturer: Marko Šarlija, assistant from the Faculty of Electrical Engineering and Computing in Zagreb)
7. Discussion - Cooperation between the private sector (ICT) and the scientific community
8. "Innovative solutions in industrial automation" (Lecturer: Kristina Šimunić, HSTEC d.d.)
9. Discussion - Examples of good practice
10. Conclusions and next steps
11. End of the workshop

2.2 Participants

PP no.	Name of organisation	Name of person, position
1.	Croatian Competitiveness Cluster of the ICT Industry	Ivan Lupić, President
2.	Culmena d.o.o.	Nedeljko Štefanić, Board Member
3.	Faculty of Electrical Engineering and Computing in Zagreb	Marko Šarlija, Assistant
4.	HSTEC d.d.	Kristina Šimunić, Chief Strategy and Marketing Officer
5.	Faculty of Electrical Engineering and Computing in Zagreb	Mate Gambiraža, Research Assistant
6.	Faculty of Electrical Engineering and Computing in Zagreb	Ivan Kesedžić, Research Assistant
7.	DIGITALI, computer programming	Alenka Bopsić, owner
8.	Sekom d.o.o., computer programming	Natalija Dumičić, Business Development Manager - Integrated IT Software Solutions
9.	EKOBIT d.o.o., computer programming	Josip Basioli, Senior Software Developer
10.	Medical IT Solutions d.o.o.	Jurica Smolić, CEO
11.	Helmholz Sistemi d.o.o., manufacture of electronic components	Ivan Ignac, Managing Director & Embedded Software Developer
12.	In cubis d.o.o., computer programing	Zvonimir Matić, Board Member
13.	Ericsson Nikola tesla d.d.	Lovro Basioli, Software Developer
14.	AB OVO d.o.o.	Vanja Lipovac, Project Manager
15.	Joint Secretariat of Interreg Italy - Croatia	Lovro Jurišić, Project Manager
16.	Joint Secretariat of Interreg Italy - Croatia	Renata Marušić, Project Manager
17.	ZADRA NOVA	Matea Karaban, Senior expert associate on project preparation
18.	ZADRA NOVA	Sanja Peričić, Head of the Regional Development Department
19.	Zadar County	Kristina Stark, Communication Manager
20.	Zadar County	Marta Hordov, Head of the Administrative Department for Economy, Tourism, Infrastructure and EU Funds
21.	INOVAcija Zadar	Vedrana Kevrić, Deputy Director
22.	CCE-ZCC	Denis Ikić, president

23.	CCE-ZCC	Ivana Šare
24.	CCE-ZCC	Marija Mišulić
25.	CCE-ZCC	Dinko Basioli
26.	CCE-ZCC	Petar Pedišić
27.	CCE-ZCC	Marko Jović

2.3 Summary of discussions

Sector	**Suggestions, proposed actions, remarks**
Priority sector: ICT and Electronics	The ICT sector is a key economic driver of the 21st century and it is one of the fastest growing industries in the world. Croatia is no exception, where ICT sector brings job opportunities of a new quality, diversifies the national economic structure, supports export performance and helps the country to build a knowledge-based economy. The ICT sector is closely linked to shared service centers as well as to different business sectors, e. g medicine, pharmacy, banking, construction, energy, and in each of them there is a great need for specialized software solutions. Software solutions speed up processes, make certain products and services cheaper, and make others better and more accessible. There is much more room for the development of the IT sector in Croatia than in Western countries because the sector has not developed in a comprehensive way. This workshop served to acquaint participants with the possibilities of using IT, its connection with other sectors, and to contribute to innovative thinking. Ivan Lupić, President of the Croatian Competitiveness Cluster of the ICT Industry, gave a presentation entitled "IT and how to use it" to connect the above, give an overview of the current situation in the IT sector and a review of the future. He commented on the possibility of using the IT sector in other industries, noting that it is well used in some of them (e.g. the health sector), but in some there is still space for improvement. ICT solutions for smart cities are mentioned, such as smart bus stations and smart parking, autonomous trains, etc. The presentation was followed by a constructive discussion on the topic of importance of ICT in other sectors. New professions for the 4th industrial revolution - repetitive jobs will disappear, creative experts will be sought, 65% of children starting school now will have jobs that do not exist today, and in the future 90% of jobs will require at least a minimum level of digital literacy. Professions that did not exist 10 years ago:

	- App developer - Social media manager - Driver-free car engineer - Cloud computing specialist - Big data analyst / data scientist - Environmental expert - Creator of Youtube content - Drone operator - An expert on the millennial generation Predictions for the future due to the impact of ICT technology: - some people have a life expectancy of 150 years and more - food is grown in skyscrapers - 3D printing and drone delivery provides close to real time supply - new buildings generate more energy than they consume - learning a second language is no longer necessary (due to the use of a software translator that will work in real time) - you don't need to drive your car unless you want to - actors are out of work, replaced by animated artists - cash is digital and virtual currencies capture a large share of GDP
Interlink sector no. 1 Advanced manufacturing	The impact of the IT sector in advanced manufacturing was mentioned in the presentations and discussion. In each individual part of the production process, IT solutions can be useful (in inventory management, tracking and logistics, the use of automated guided vehicles, the use of collaborative robotics, etc.). The introduction of 5G technology and network was highlighted as a very important item in all this. Prof.dr.sc. Nedeljko Štefanić spoke about smart factories, the main trends and innovations within Industry 4.0: - Advanced robotics - Internet of everything - Edge, Fog and Cloud Computing - Artificial Intelligence - Digital Twin - 3D Printing - Human Augmentation and Extended reality - Network and Connectivity - Big Data and Analytics Within the entire production value chain, changes and transformations can be expected precisely thanks to ICT technology. Each phase of the production process (logistics operations, marketing, sales, etc.) will be labelled "smart" because of the use of software solutions. The CULIS methodology was presented - the transition of Croatian industry, the construction of platforms and ecosystems. It is based on

	digital strategy and digital transformation. CULIS monitors quality and excellence through the application of the Qualy web application and includes the implementation of 15 most important digital technologies. Its implementation can realize the concept of a smart factory, develop a platform for smart and connected products, increase the added value of the portfolio of own products, etc. For the successful implementation of CULIS, it is necessary to map the existing ICT infrastructure (software, hardware) and develop a high level of interoperability. The application of the CULIS methodology within several factories in Croatia and Slovenia was presented. Kristina Šimunić from the company HSTEC d.d. presented what a business process looks like inside a factory where smart products and solutions are made.
Interlink sector no. 2 Health	Healthcare is a very interesting industry for the ICT sector, which can greatly facilitate the functioning in the pre-treatment, treatment and post-treatment phase. This refers to: - screening - diagnostics - patient information management - treatment selection - adherence - monitoring - monitoring and continuous patient care It was pointed out that the central system of the Croatian Ministry of Health is one of the most advanced in the world, Croatia is at the top in the EU. However, far from having no plans for the future (5 to 10 years from now), it is moving towards connecting with various other systems that are not connected, etc. In this field, any innovation is welcome and there is still space for improvement. About 30 IT companies operate in the field of healthcare in Croatia. Marko Šarlija, Assistant from the Faculty of Electrical Engineering and Computing in Zagreb, presented to the audience the project he is working on at the Faculty, which connects computing and science.
Interlink sector no. 3 Energy and environment	Green ICT - there are many areas in agriculture, cities, environmental protection, water protection where ICT can help. ICT itself has a carbon footprint and what is good is that implementing an ICT solution reduces carbon footprint in other industries. According to the Croatian National Development Strategy (2030), one of the development directions is the Green and Digital Transition, which includes: - ecological and energy transition for climate neutrality - food sufficiency and bioeconomy development - sustainable mobility

	- digital transition of society and economy None of the above can be achieved without the application of ICT solutions.

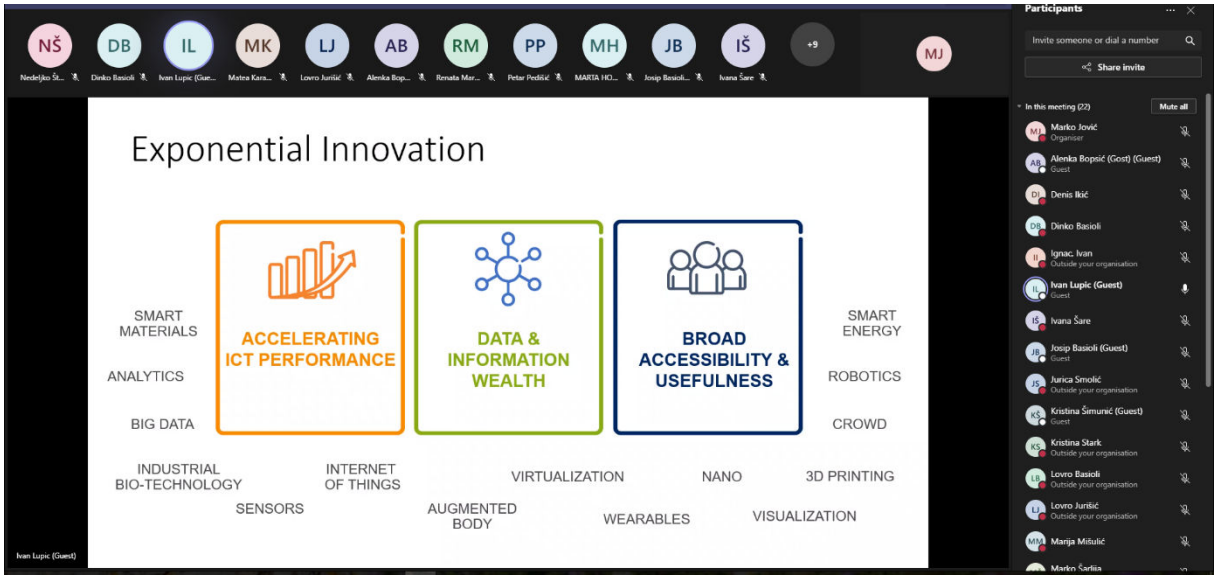
2.4 Conclusions and next steps

This workshop was held to present the CHAIN REACTIONS project, the partnership network, trends and directions of sector development, connecting ICT with other industries and to give examples of good practice. All this was done with the aim of encouraging innovative thinking among participants and their further involvement in our project activities. This primarily refers to the hackathon that is the backbone of our pilot. Regarding the maintenance of hackathon a circumstance that doesn't go in our benefit, it is the fact that IT companies are doing very well in the COVID-19 pandemic. As we find out through meetings and communication with them, they are overwhelmed with work, they have so many new projects to develop, and even companies that were willing to participate in the hackathon, and with which we often cooperate through other activities, had to cancel our cooperation due to new commitments and acceptance of new projects. One of the goals of the workshop was to encourage the IT companies that were present to get involved in our pilot activities. The workshop also provided us with data that are beneficial in further activities in creating transnational industrial innovation roadmap.

Next steps:

- The outcome of the event will be shared with our project partner
- Use the data from the workshop to create a transnational industrial innovation roadmap
- Promotion of the project and pilot activities among our stakeholders, mainly for the organization of hackathon and matchmaking event
- Further cooperation with the scientific community
- Cooperation with project partners in the organization of other workshops

ANNEX: SCREENSHOTS OF THE WORKSHOP



10 Top Industry 4.0 Trends & Innovations in 2021
INDUSTRY 4.0
770
Startups & emerging companies analyzed
Data provided by StartUs insights
January 2021
Analiza stanja i pravci razvoja Industrije 4.0 u Hrvatskoj i Europi - Startup
3 of 21
Nedeljko Štefanić
Participants
Invite someone or dial a number
Share invite
In this meeting (22)
Mute all
Marko Jović
Organiser
Denis Ilkić
Dinko Basioli
Ignac, Ivan
Outside your organisation
Ivan Lupic (Guest)
Guest
Ivana Šare
Josip Basioli (Guest)
Jurica Smolić
Outside your organisation
Kristina Šimunić (Guest)
Kristina Šimunić (Guest)
Kristina Stark
Outside your organisation
Lovro Basioli
Outside your organisation
Lovro Jurišić
Outside your organisation
Marija Mišulić

Transformacija cijelog lanca vrijednosti
Smart Container
Smart Maintenance
Smart Perfume-Production
Smart Sales
Smart Information
Smart Scanner
Smart Farming
Smart Production
Smart Building
Smart Milking
Smart Services
Smart Bicycle
Ulazna logistika
Operativa (proizvodnja)
Izlazna logistika
Marketing i prodaja
Usluge
Smart Power-Supplies
Smart Damage Reporting
Smart Home
Smart Car Production
Smart Mix
Smart Catalog
Smart Procurement
Smart Intra-Logistics
Smart Production Machine
Smart Delivery
Smart Pricing
Smart Car
Prilagodio autor iz: TU Wien i Fraunhofer Austria, 2015
5 of 21
Nedeljko Štefanić
Participants
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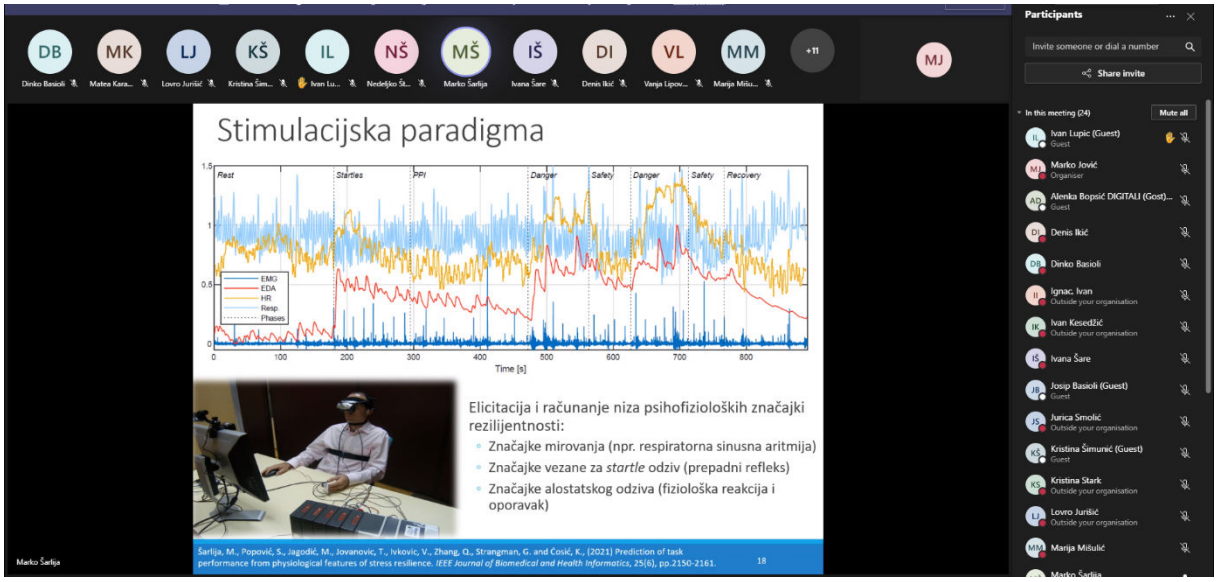
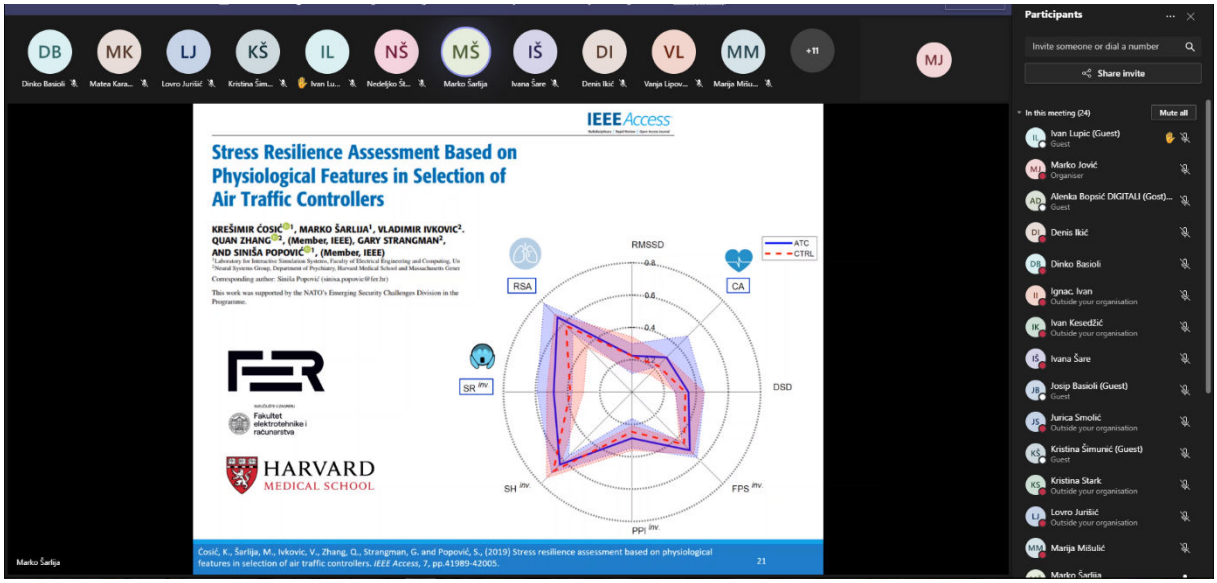
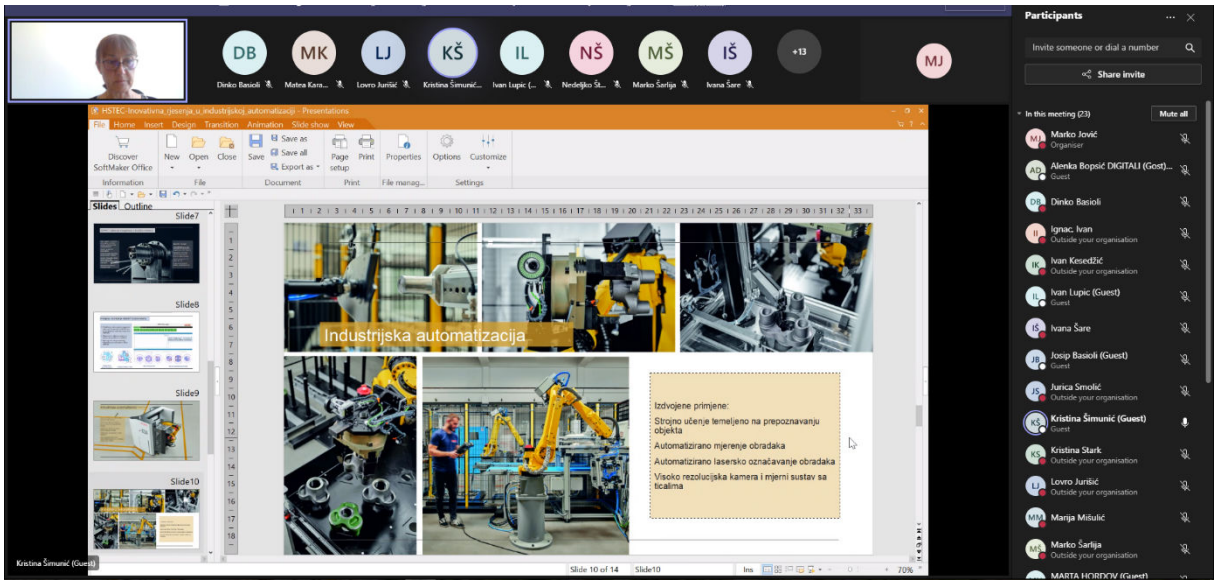
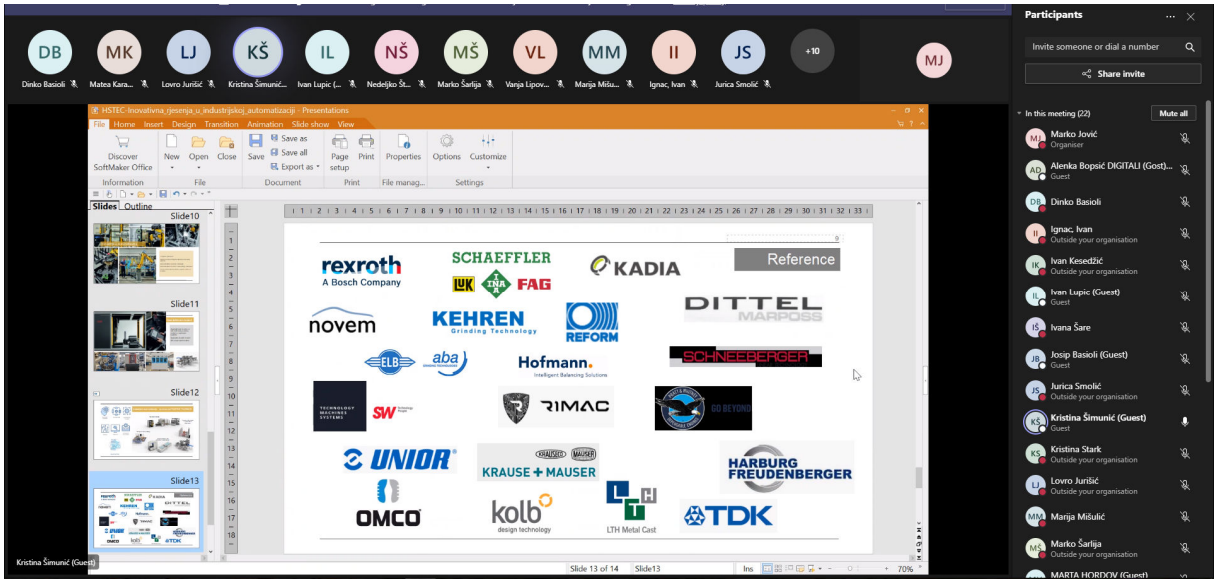
Kristina Stark
Outside your organisation
Lovro Basioli
Outside your organisation
Lovro Jurišić
Outside your organisation
Marija Mišulić
Marko Šarlija
Outside your organisation

SMART FACTORY LAB NA FAKULTETU STROJARSTVA I BRODOGRADNJE
EU PROJEKT PAMETNE TVORNICE :Razvoj modularnog ekspertnog sustava za upravljanje diskretnim proizvodnim procesima temeljenog na primjeni SMART FACTORY načela
Nositelj: Fakultet strojarstva i brodogradnje
Partneri: Končar energetski transformatori, Windor
Vrijednost projekta: 10.221.870,48 Kn
Oprema: Smart Factory PC Lab, instalirat će se u Laboratoriju za proizvodni menadžment, Katedra za Upravljanje proizvodnjom, Zavod za Industrijsko inženjerstvo
Trajanje projekta: 12/2020-11/2022
FSB
KPT
WINDOR
IMPULS SAVJETOVANJE
Inspirirani inovacijama
FESTO
19 of 21
Nedeljko Štefanić
Participants
Invite someone or dial a number
Share invite
In this meeting (22)
Mute all
Marko Jović
Organiser
Alenka Bopsić DIGITALI (Gost)...
Guest
Denis Ilkić
Dinko Basioli
Ignac, Ivan
Outside your organisation
Ivan Lupic (Guest)
Guest
Ivana Šare
Josip Basioli (Guest)
Jurica Smolić
Outside your organisation
Kristina Šimunić (Guest)
Kristina Stark
Outside your organisation
Lovro Jurišić
Outside your organisation
Marija Mišulić
Marko Šarlija
Outside your organisation


Stimulacijska paradigma
Rest
Startles
PPI
Danger
Safety
Danger
Safety
Recovery
EMG
EDA
HR
Resp.
Phases
Time [s]
Elicitacija i računanje niza psihofizioloških značajki rezilijentnosti:
Značajke mirovanja (npr. respiratorna sinusna aritmija)
Značajke vezane za startle odziv (prepadni refleks)
Značajke alostatskog odziva (fiziološka reakcija i oporavak)
Šarlija, M., Popović, S., Jagodić, M., Jovanovic, T., Ivkovic, V., Zhang, Q., Strangman, G. and Ćosić, K., (2021) Prediction of task performance from physiological features of stress resilience. IEEE Journal of Biomedical and Health Informatics, 25(6), pp.2150-2161.
18
Participants
Invite someone or dial a number
Share invite


IEEE Access
Stress Resilience Assessment Based on Physiological Features in Selection of Air Traffic Controllers
KREŠIMIR ĆOSIĆ, MARKO ŠARLIJA, VLADIMIR IVKOVIĆ, QUAN ZHANG, (Member, IEEE), GARY STRANGMAN, AND SINIŠA POPOVIĆ, (Member, IEEE)
This work was supported by the NATO's Emerging Security Challenges Division in the Programme.
Fakultet elektrotehnike i računarstva
HARVARD MEDICAL SCHOOL
RMSSD
ATC
CTRL
RSA
CA
SR inv.
DSD
SH inv.
FPS inv.
PPI inv.
Ćosić, K., Šarlija, M., Ivkovic, V., Zhang, Q., Strangman, G. and Popović, S., (2019) Stress resilience assessment based on physiological features in selection of air traffic controllers. IEEE Access, 7, pp.41989-42005.
21
Participants
Invite someone or dial a number
Share invite


Industrijska automatizacija
Izdvojene primjene:
Strojno učenje temeljeno na prepoznavanju objekta
Automatizirano mjerenje obradaka
Automatizirano lasersko označavanje obradaka
Visoko rezolucijska kamera i mjerni sustav sa ticalima
Participants
Invite someone or dial a number
Share invite


Participants
Reference
rexroth
A Bosch Company
SCHAEFFLER
KADIA
FAG
novem
KEHREN
REFORM
DITTEL
MARPOSS
Hofmann.
SCHNEEBERGER
RIMAC
UNIOR
KRAUSE + MAUSER
HARBURG FREUDENBERGER
OMCO
kolb
LTH Metal Cast
TDK