RESEARCH-TECHNOLOGY - INNOVATION

FOR SUSTAINABLE GROWTH

Deafblindness: Care for the vulnerable

A garment sewn from smart fabrics will obtain information about the things happening in the environment via a set of sensors and other technologies, and will convey information to the bearers through haptic language

A Smart Garment for People with Deafblindness

"*Your friend is looking at you now*", "*The glass of water is on your left*", "*The exit is right in front of you*" - such information will be given to the deafblind by the innovative EU-funded SUITCEYES project (http://suitceyes.eu/), which kicked off in early 2018.

Deafblindness is a condition that can be congenital or acquired through illness, accident, and/or old age. It is estimated that around 2.5 Million people with deafblindness currently live in the EU, and this number is expected to rise considerably by 2030. SUITCEYES promises to deliver a solution that will allow these people to take a more active part in society.

The project aims to create a garment sewn from smart fabrics that will obtain information about the things happening in the environment via a set of sensors and other technologies, and will convey information to the bearers through haptic language, i.e. a language of touch, vibrations, and movements, thus, informing the bearers if someone is looking at them or where an object they dropped is in the room. The garment will also help them to navigate themselves indoors and outdoors and to communicate with other people. The technological development of the interface involves a multitude of disciplines, like machine learning, sensor technologies, image and signal processing, psychophysics and affective computing.

Nasrine Olson, project coordinator and senior lecturer at the University of Borås explained with regards to her assuming a coordinating role in this project: "There were a number of different factors that came together and collectively inspired me towards this decision. On a personal level, the overarching idea was definitely interesting and valuable for a substantial group of people. Not to mention that I very much enjoy collaboration, especially between largely interdisciplinary teams, and EU projects indeed enable forming constellations of strong and interesting teams. Finally, the topic of this research project has multiple affinities with the objectives of our University".

As Stratos Kontopoulos, MKLab's lead researcher in SUITCEYES, explained "The role of our research group in the project is crucial, as we will in a sense try to substitute the blinded eyes of people with deafblindness through the use of novel methods for real-time identification of people and objects".

The project consortium consists of seven research and business partners from seven EU countries and is coordinated by the University of Borås in Sweden. CERTH/ITI proudly participates in SUITCEYES through MKLab (Multimedia Knowledge and Social Media Analytics Laboratory), which will deliver the platform components responsible for face and object recognition, data capture, translation and semantics.

Although the SUITCEYES prototype will be developed specifically for users with deafblindness, the project's application area is not limited to this group. A system that affords improved perception of the surrounding environment, and allows an alternative (haptic) mode of communication can scale to multiple other application areas. There are many circumstances where a user lacks full reliance on the visual and auditory senses such as firefighting in smoke-filled rooms, rescue missions in dark and noisy environments, sports training and more.

SUITCEYES is a three-year Research and Innovation project financed by the European Commission under the Horizon 2020 programme.

Building new 3D virtual cultural worlds

In the context of the European project "DigiArt: The Internet of Historical Things and Building New 3D Cultural Worlds", ITI/CERTH's Multimedia Knowledge and Social Media Analytics Laboratory (MK-Lab) developed three serious games for communicating three case studies of the European culture. Using a virtual reality system, the visitor can tour the Scladina Cave of Belgium and explore his history over the years. Virtual scientists and three-dimensional animations offer useful help 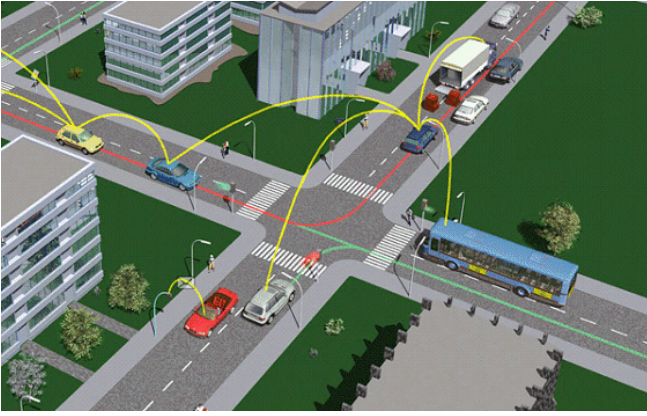in understanding the evolution of the cave in a fun way. Scladina's cave three-dimensional model, as well as representations of archaeological finds, were digitized by project partners, using innovative, low cost scanning techniques and equipment such as scanning and drones using laser detection and ranging.

The Virtual Anthropology Museum hosts a rich collection of bones and skulls from Liverpool John Moores University, which present their unique history from the Roman years to the Medieval and the Victorian era. The visitor interacts with the three-dimensional digitized findings in the virtual environment and understands their (usually tragic) history, identifying evidence of crime and traces of illness. Informative anthropologist videos and quiz games encourage the user to search for knowledge in a pleasant way.

The Palace of Aigai, the emblematic building that is directly connected with the life of King Philip II, comes alive in the game of serious purpose. The user attempts to install an exhibition of the facade of the Palace looking for information about the building blocks and placing their representations in the exhibition space. The integration of virtual reality technologies, which enhance the immersion and sense of player presence in the virtual environment, prompt the user to act more physically in the virtual reality game.

In addition, MK-Lab has developed augmented reality applications that will be available to Scladina Cave visitors, and in real time they will be able to interact with enhanced information located in the archaeological site, by using their smart mobile devices. At the same time, the laboratory developed the Storytelling engine, a flexible online tool that both culture professionals and ordinary users can easily create their own virtual archaeological site, enriched with new findings, and offering it for virtual tour.

Official website: http://digiart-project.eu

Courses on the ITS e-Learning Platform are now available

Europe's leading intelligent transport systems (ITS) players have joined forces to deliver ground-breaking training and educational courses based on the mass Online Open Course model (MOOC). A MOOC is, according to Educause, a model for delivering learning content online to any person who wants to take a course, with no limit on attendance.

 Courses started on 17 April on the ITS e-learning online training platform and registration is open and free through the link www.its-elearning.eu. Participants will have the chance to learn about ITS and cooperative ITS (C-ITS) services and experience these cutting-edge technologies first-hand, thanks to face-to-face training sessions with experts in the field. Online training will be supported by live demonstrations held across Europe in the following months.

Experienced ITS professionals, including ERTICO's Pr. Eric Sampson, Dr. Simon Edwards from the University of Newcastle, AustriaTech's Mobility Manager Katharina Zwick, and Monica Giannini, Senior Project Manager at the International Road Union, will guide students and provide expert advice throughout the courses. The Hellenic Institute of Transport (CERTH-HIT) participated in the development of the courses' material while Panagiotis Iordanopoulos, Research Associate of CERTH-HIT is the tutor of one of the courses

The online training programme consists of nine modules covering various aspects of ITS and caters to all levels. Course topics include: Introduction to ITS, Impacts of ITS, Financial Incentives and Business Models, Data Protection and Guidance on deployment of C-ITS.

Flexible course organisation lets participants engage with the material at their own pace, making it accessible to professionals in academia, public authorities, traffic management, industry, or infrastructure operators.

The platform and courses have been developed by a consortium of ITS experts and professionals under the banner of the EU-funded project "CAPITAL" (http://capital-project.its-elearning.eu). The Collaborative cApacity Programme on Intelligent Transport Systems Training-educAtion and Liaison (CAPITAL) is a support action funded by the European Union in order to design and deliver a collaborative capacity-building programme.

According to the coordinator of CAPITAL, Manuela Flachi, Manager in Transport & Logistics department of ERTICO: *"The CAPITAL online courses represent a starting point when approaching the ITS environment. They can be seen as a tool for improving the knowledge and professional skills when they lack. The 9 courses set respond to specific needs and provide an essential "learning pack" of the ITS and C-ITS fundamentals, analysed from different angles. Our trainers are dedicated professionals perfectly aware of the challenges and benefits ITS services bring. Here relies the importance of the initiative."*

CERTH takes part in the 5th Technology Forum

On Wednesday, 16 May 2018 is going to take place in Thessaloniki at the Aristotle University, from 09.00-18.00. Qualified experts and researchers are going to take part as speakers towards a wide range of important current issues such as blockchain, fake news, big data and much more. The Chairman of the Board of Directors of CERTH, Dr. Athanasios Konstandopoulos is going to participate in the round table with the topic: Cooperations achieved and future ones among the organizations in the South-East Europe. Below, researchers of CERTH talk about their participation in the 5th Technology Forum.

" Blockchain is undoubtedly a brilliant invention of our era which, although initially destined for digital coins (Bitcoin), now finds multiple applications in various fields such as health, energy, etc. As the blockchain is essentially a series of entries in a public ledger, ensures the security and transparency of these transactions. In this session, an extensive presentation and analysis of blockchain technologies and their widespread use will be made, **Dr. Konstantinos Votis, Researcher C' ITI/CERTH, - Session: Blockchain**

" The publication and spread of misleading content is a problem of increasing magnitude, complexity and consequences in a world that is increasingly relying on user-generated content for news sourcing. "The Era of Fake News: Misinformation and Disinformation on the Internet" session will include recent approaches and challenges in handling and verifying social media content. Practical services and tools will also be presented currently being used in the fight against misleading content, **Dr. Ioannis Kompatsiaris, Researcher A' ITI/CERTH - Session: The Era of Fake News: Misinformation and Disinformation on the Internet**

" In an evolving Smart Cities ecosystem, a set of different Innovative Solutions will be demonstrated in 3 Lighthouse cities (Utrecht, Nice and Gothenburg) within the IRIS H2020 project, covering different aspects of the city, from energy positive districts and smart energy management, to smart e-mobility. All these empowered by a digital integrated city innovation platform, enforcing active citizen engagement and co-creation, **Mr. Athanasios Tryferidis, Research Assistant ITI/CERTH - Session: Smart Cities**

" Post-market, drug safety surveillance is a major public health issue. Recent technological advances enable us to develop "active" surveillance mechanisms. The presentation concerns research conducted in the Institute of Applied Biosciences of CERTH, having its basis on the secondary exploitation of emerging health data sources for drug safety surveillance, such as observational health databases, e.g. Electronic Health Records, and patient/citizen-generated data obtained e.g. from mHealth apps and social media platforms, **Dr. Vassilis Koutkias, Researcher C' INAB/CERTH - Session: Healthcare**
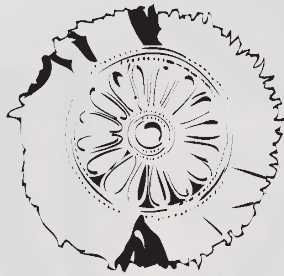
Interregional workshop on cluster policy

On Wednesday 28 of March 2018, CERTH, as partner of the European Initiative "ClusterFY" organized in collaboration with counterparts from Sweden, the Netherlands and Lithuania the interregional workshop **«Innovation and cluster policy development: Exchange of knowledge between Greece, Sweden, The Netherlands and Lithuania».** The workshop that took place at CERTH's premises, was very successful, attracting high interest of over 25 stakeholders representing more than 15 organization from the quadruple helix -Q4 of the region: Clusters facilitators and SMEs members, innovation and development agencies and consultants, researchers and academics, business associations and regional authorities, exchange their knowledge and experiences on innovation and clusters related practices and policies development in the involved regions.

Invited key speakers were acknowledged for their vast experience in clusterization processes. Mr Luc Hulsman, Senior strategist EU programming, The Northern Netherlands Provinces alliance, presented the **"Open Innovation call".** Mrs Rima Dijkstra, "ClusterFY" project coordinator, Agency for Science, Innovation and Technology MITA, analyzed the case of the **"Innovation Express",** a transregional joint call for proposals (among Sweden, Denmark, Lithuania, Germany, Norway, Catalonia) implemented within the framework of the Baltic Sea Region Stars programme. Two more Lithuanian success stories were shared: **LITEK Cluster** and **Santara Valley** demonstrating at the same time how KETs uptake can accelerate clusters and their members SMEs entrance into international Innovative Value Chains. Mrs Karin Skalman Iftac CEO (Hexatronic group), former Innovation agency VINNOVA Programme director, EU Baltic Sea macro-regional strategy priority area coordinator, presented the **VINNVAXT programme & iHubs Sweden,** the national innovation platform that stands for smart specialisation and the development of industry through innovation. Mr Albert Haan Senior strategist EU collaboration, The Northern Netherlands Provinces alliance, shared the Dutch experience of over-nurtured cluster management entities and emphasized on **the balance ERDF clusters' policy mix** should keep, between direct services to members and capacity building for cluster managers/facilitators. Mr Ioannis Fallas, cluster Manager, shared his experience from the formation and operation of the **CluBE Cluster** of Bioenenergy & Environment that is active in the Greek region of Western Macedonia.

The inspiring presentations and speeches triggered a vivid round table discussion on the role of business networks and clusters in the regional development and the opportunities to enhance them through ERDF funding. The different approaches of the smart specialization strategies development and the focus and type of measures and actions that could serve them were on the spotlight as well. Opportunities and threats were revealed and insights were shared concerning also how the "ClusterFY" project could assist the region of central Macedonia to improve innovation and cluster policy with the aim of regional growth.

EKETA

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The **Centre for Research and Technology-Hellas (CERTH)** founded in 2000 is one of the leading research centres in Greece and listed among the TOP-20 E.U. institutions with the highest participation in competitive research grants.

Today CERTH includes the following five institutes with indicated major fields of research:

- **Chemical Process and Energy Resources Institute (CPERI)** Sustainable & Clean Energy, Environmental Technologies, Chemical & Biochemical Processes, New Functional Materials
- **Information Technologies Institute (ITI)** Informatics, Telematics and Telecommunication Technologies, Safety and Security
- **Hellenic Institute of Transport (HIT)** Smart Sustainable Mobility, Transport Safety
- **Institute of Applied Biosciences (INAB)** Agri-biotechnology, Health Translational Research, Informatics for big bio-data
- **Institute for Bio-economy and Agri-Technology (IBO)** Bio-economy, Agri-technology

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