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ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

17001 I²PANEMA

Intelligent IoT-based Port Artefacts Communication, Administration & Maintenance

Project details

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Name: Container Localization		
Input(s):	Main feature(s)	Output(s):
Signals of IoT devices of container positions	One of the most important problems in ports is the monitoring of the yard positions of the container instantly. Mostly, position data is entered to the vehicle mounted terminals by the operator and operators lose time both to use the crane and to record these movements, and to do these by leaving the crane controls created safety problems. With this system, container localization, allows the positions of the containers in the yard to be sent to the system instantly and with 50 cm precision, with an IoT device attached to the stacker. The device is mounted on the boom of the stacker.	Localization of containers

Unique Selling Proposition(s):	Decreases the number of operator's fault and completion time of one Stacker movement and also decreases the operator's usage of VMT and of the risks of incidents
Integration constraint(s):	Integrated with TOS VPORT
Intended user(s):	Operators in port yards
Provider:	VTEK, ERSTE, SRDC
Contact point:	Bulent Akova, VTEK (bakova@vtek.com.tr)
Condition(s) for reuse:	License needed
	Latest update: April 1, 2022

Name: Security Analysis with STRIDE and DREAD applied on IoT		
Input(s):	Main feature(s)	Output(s):
▪ IoT System Architecture ▪ Assets to protect	▪ Structured methodology to IoT System security analysis ▪ Asset identification, Architecture definition, Using of STRIDE method (threat identification) and DREAD method (threat severity rating)	▪ List of identified and rated security threats ▪ List of potential remedies to counterfeit them

Unique Selling Proposition(s):	▪ Structured approach avoids overlooking particular aspects ▪ Improved awareness for security ▪ Adding value to IoT solutions
Integration constraint(s):	None
Intended user(s):	IoT System Developers
Provider:	STRIDE and DREAD methodology were originally developed by Microsoft for IT systems and NXP applied them to IoT Systems.
Contact point:	Felix Manthey (felix.manthey@nxp.com)
Condition(s) for reuse:	Methodology used by NXP may be reused for other purposes
	Latest update: April 1, 2022

Name: Real-time edge parking lot detection system		
Input(s):	Main feature(s)	Output(s):
IoT sensor signals	An AI-based parking IoT detection has been developed. Detection algorithms have been transformed to be used on an edge device, accelerated by a tensor processing unit (TPU). The edge device is wirelessly connected to the I²PANEMA backend server using LoRaWAN to provide parking lot occupancy data in real-time. The system can make energy-efficient yet accurate object detection.	Parking lot occupancy

Unique Selling Proposition(s):	Energy-efficient object detection and data transmission
Integration constraint(s):	Currently based on a public parking area.
Intended user(s):	Logistics companies, port owners
Provider:	University of Rostock
Contact point:	Frank Golatowski (frank.golatowski@uni-rostock.de)
Condition(s) for reuse:	Adaptation to local conditions (camera position, angle, structure of parking area, targeted vehicles)

Latest update: April 1, 2022

Name: Real-time environmental indicators enhanced with predictive alarms		
Input(s):	Main feature(s)	Output(s):
Sensor signals	Opportunity with the Port of Gijón to deploy the developed IoT platform, integrating the different environmental sensors together with widget-based dashboard offering added-value services for both real-time data and predicted data.	Prediction of environmental particles

Unique Selling Proposition(s):	Full stack web-based smart solution from sensors to end users.
Integration constraint(s):	Dependency on third-party sensors API or data format
Intended user(s):	Sustainability departments of Port Authorities
Provider:	Prodevelop
Contact point:	Christophe Joubert (cjoubert@prodevelop.es)
Condition(s) for reuse:	API and raw data format
	Latest update: April 1, 2022

Name: Analysis of the potential use of ANC in a CT-Terminal		
Input(s):	Main feature(s)	Output(s):
Original noise signals	Commercial project to analyse the potential of using ANC in a terminal to digitally elevate a noise barrier.	Anti-noise signals to counter noise

Unique Selling Proposition(s):	Less noise emissions
Integration constraint(s):	Use of existing infrastructure and noise abatement measures. Use of existing infrastructure and noise abatement measures. Direct residential development next to the terminal.
Intended user(s):	Combined transport terminals
Provider:	Fraunhofer Gesellschaft IML + LBF
Contact point:	Achim Klukas (achim.klukas@iml.fraunhofer.de)
Condition(s) for reuse:	Adaptation to local conditions
	Latest update: April 1, 2022

Name: NB-IoT Service		
Input(s):	Main feature(s)	Output(s):
▪ access points (APNs) for simcards ▪ NB-IoT modules in IoT devices.	Turkcell offers NB-IoT connectivity service to the sectors where IoT is used. The service is given with Turkcell simcards and special APNs that are defined for these simcards. The IoT device should be integrated with a special NB-IoT module. The simcard is inserted to the module and after the installation is completed the IoT device may be connected to the LTE network. During the I²PANEMA project this solution has been proved to be used in the ports.	connected IoT devices

Unique Selling Proposition(s):	NB-IoT Module, simcard, APN description, coverage for LTE
Integration constraint(s):	Turkcell offers services in Turkey. The companies who are interested to use the NB-IoT solution, after their initial contact, they will be guided by our technical and business teams to be integrated to the system.
Intended user(s):	IoT companies, IoT providers, factories with IoT infrastructure.
Provider:	Turkcell
Contact point:	Isil Ozkan (isil.ozkan@turkcell.com.tr)
Condition(s) for reuse:	The service fee is matter of negotiation and is based on a subscription model.
	Latest update: April 1, 2022