ITEA Office
High Tech Campus 69 - 3
5656 AG Eindhoven
The Netherlands

T + 31 88 003 6136
E info@itea3.org
W www.itea3.org

ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

15043 Safe Rescue

Project details

Project leader:	Celal Bulent Seyalioglu
Email:	cseyalioglu@borcelik.com
Website:	https://www.borcelik.com/

Name: AoA Localization Algorithm		
Input(s):	Main feature(s)	Output(s):
▪ AoA ▪ RSSI	▪ Fuse AoA with RSSI to estimate the location of a device with only one anchor node	▪ Estimated relative location of the device
UNIQUE SELLING PROPOSITION(S):	▪ The algorithm enables the use of only one anchor node for localization algorithm, which is the key point for infrastructure-less localization systems. ▪ The algorithm has fusing capability with other localization techniques like Time of Flight (ToF), Received Signal Strength Indicator (RSSI) and Time Difference of Arrival (TDoA)	
INTEGRATION CONSTRAINT(S):	▪ A custom antenna array is needed for the system to work, which will be sold separately. ▪ Linux based computation unit is needed (like Raspberry Pi)	
INTENDED USER(S):	▪ Next generation localization device developers	
PROVIDER:	▪ GOHM Electronics and Computing Systems Ltd	
CONTACT POINT:	▪ Cem Ayyildiz - ca@gohm.com.tr	
CONDITION(S) FOR REUSE:	▪ Commercial use	

Latest update: 11 March 2020

Name: Low Latency Mesh Communication System		
Input(s):	Main feature(s)	Output(s):
▪ Audio via microphone ▪ Data from ethernet	▪ Low Latency Mesh Communication with data and voice option	▪ Self healing mesh algorithm ▪ Adaptive voice compression algorithm ▪ Time Division Multiple Access (TDMA) Algorithm ▪ Frequency hopping up to 200 hopping per second.

Unique Selling Proposition(s):	▪ The system enables the communication of team members in harsh environments without any required infrasture. ▪ The system can transmit audio and data simultaneously in long range (for audio up to 3 hops, for data up to 8 hops with less than 5ms latency per hop) ▪ With Frequency Hopping (FH) the communication is resilient to interference. ▪ Wearable form factor for easy usage
Integration constraint(s):	▪ The mesh is created with custom designed hardware.
Intended user(s):	▪ Rescue teams who require audio and data transmission on the field
Provider:	▪ GOHM Electronics and Computing Systems Ltd
Contact point:	▪ Cem Ayyildiz - ca@gohm.com.tr
Condition(s) for reuse:	▪ Commercial use

Latest update: 11 March 2020

Name: The Poisonous Gas Sensors		
Input(s):	Main feature(s)	Output(s):
▪ Gas concentration of the environment	▪ Low power wireless poisonous gas sensor	▪ Alarms related with environmental gas situations like O2, CO2, CO

UNIQUE SELLING PROPOSITION(S):	▪ Wireless gas sensor for different safety related applications ▪ Wearable form factor for easy usage
INTEGRATION CONSTRAINT(S):	▪ The mesh communication system designed by GOHM is needed.
INTENDED USER(S):	▪ Rescue teams who require situational awareness
PROVIDER:	▪ GOHM Electronics and Computing Systems Ltd ▪ Borcelik Celik Sanayi Ticaret A.S.
CONTACT POINT:	▪ Cem Ayyildiz - ca@gohm.com.tr ▪ Celal Seyalioglu - cseyalioglu@borcelik.com
CONDITION(S) FOR REUSE:	▪ Commercial use

Latest update: 11 March 2020

Name: Design specification guideline for emergency wearables		
Input(s):	Main feature(s)	Output(s):
▪ Contextual interviews with rescue teams ▪ Previous user studies on wearable technologies	▪ The guideline is created with collaboration of industrial designers and emergency teams ▪ The document summarizes the design issues that need to be considered when designing wearable technologies for the work environment	▪ Design guideline for safety wearables

UNIQUE SELLING PROPOSITION(S):	▪ Design specification guideline for emergency wearables
INTEGRATION CONSTRAINT(S):	▪
INTENDED USER(S):	▪ Industrial designers for safety wearables.
PROVIDER:	▪ KOC University
CONTACT POINT:	▪ Aykut Coskun - aykutcoskun@ku.edu.tr
CONDITION(S) FOR REUSE:	▪ Open Source

Latest update: 11 March 2020

Name: Localization Simulator		
Input(s):	Main feature(s)	Output(s):
▪ AoA ▪ ToF ▪ RSSI ▪ TDoA	▪ Can fuse different types of localization parameters	▪ Localization test environments for different algorithms
UNIQUE SELLING PROPOSITION(S):	▪ The fusion algorithm is using graphical based estimation method which can find solutions where mathematical models cannot.	
INTEGRATION CONSTRAINT(S):	▪ PyQt5 (or newer) ▪ Python 3.6 (or newer) ▪ Tkinter 8.6 (or newer)	
INTENDED USER(S):	▪ Localization algorithms developers	
PROVIDER:	▪ GOHM Electronics and Computing Systems Ltd	
CONTACT POINT:	▪ Cem Ayyildiz - ca@gohm.com.tr	
CONDITION(S) FOR REUSE:	▪ Open Source (will be soon)	

Latest update: 11 March 2020