Suported by:

Technology Agency
of the Czech Republic

www.tacr.cz

ILOC

ILOC

Iloc is a system for inertial localization and navigation of personnel working in hazardous environments where traditional navigation methods, such as satellite systems (GNSS) or ground-based radio systems, are unavailable.

The system is primarily designed for locating individuals in challenging environments, such as inside buildings, underground spaces (e.g., caves, parking garages, tunnels), steel structures (e.g., ships, containers, tanks), and during transitions between these environments and the outdoors.

Potential applications include use by emergency services, military personnel, industrial workers, security teams, geologists, and miners.

Key Features

The system enables rapid localization of workers in dangerous environment and in emergencies that pose a threat to their health or life. It also facilities their navigation to safety.

Full integration of navigation and localisation system into work gloves and boots/shoes, i.e. the system does not limit the users in any way during their duties.

Inertial localisation of position – the system does not require any external localisation or navigational infrastructure, it requires only remote wireless data transmission between MCU and cloud system (usually 4G/5G network).

LED compass for navigational purposes integrated into work gloves. The user has access to intuitive visual navigation without any need of using another device and any manipulation with it.

Low demands on wireless communication infrastructure thanks to small amount of transmitted data between each of the devices of the system (glove, boot, MCU).

PROJECT COORDINATORS:

Holík International, s.r.o.
Za Dvorem 612, 763 14 Zlín-Štípa | Czech Republic

Tomáš Pekař | pekar@holik-international.cz | Tel.: +420 603 885 028
www.holik-international.cz

University of West Bohemia
Univerzitní 8/2732, 306 14 Plzeň | Czech Republic

Radek Soukup | rsoukup@ket.zcu.cz | Tel.: +420 377 634 542
www.zcu.cz

Dune
Dune Srl, Via Tracia 4, 00183 Rome | Italy

Enrico de Marinis | info@dune-sistemi.com | Tel: +39 06 7045 1252

Localization and Navigation System for Rescue Operations integrated into Protective Footwear and Gloves

3rd TREND CALL

Programme **TREND**

Project number: FW03010023
Project start date: 02/2021
Project end date: 10/2024

GCU

Work gloves with integrated electronics: estimation of current position in the area (azimuth, tilt), LED navigation compass, status indicating features, multifunctional button, independent power source, wireless data transmission via radiofrequencies.

BCU

Work boots with integrated electronics: estimation of current relative position in X, Y, Z coordinates, wireless transmission of data via radiofrequencies, multifunctional button, status LED indicators and independent power source. Measured data from integrated inertial sensors and pressure sensor are processed with specially modified dead reckoning algorithm, based on which the current location data are determined.

MCU

Main Control Unit: wireless communication with BCU and GCU, wireless communication with superior cloud system, multifunctional button, status indicating features, independent power source.

CLOUD

FLARE System®

Firefighter Location and Rescue Expert

Cloud system

Cloud system with integrated backend application with following functions – processing of navigation and localisation data, calculating with implemented advanced algorithms for localisation accuracy, saving and administration of acquired data, online corrections and trajectories of users.

Frontend web based application:

Application which shows trajectories of users and other information, such as entry points, user status and status of their ILOC devices, etc., graphical user interface allowing manipulating of the whole system. Trajectory and localisation is visualised in 2D digital map.

ILOC
Around the world