This project has received funding from the European Union's Pilot Project for Defence Research - PP programme under grant agreement No PP-15-INR-02_02 [SPIDER]

Sensor Platform & network for Indoor Deployment and Exterior-based Radiofrequency (SPIDER)

Under the Pilot Project on Defence Research (PP), the grant for the call on Pilot Project on Defence Research was concluded with the project called SPIDER on 21 February 2018. Led by TEKEVER ASDS (Portugal), SPIDER's consortium encompasses 3 other participants from 3 countries: IT Aveiro (Portugal), Aralia Systems Ltd. (UK) and Defence Institute "Professor Tsvetan Lazarov" (Bulgaria). The project, which had a duration of 15 months, received an EU grant of €433.225,00.

PP Call 15-INR-02_02 – Information on the awarded project	
Name of the project	Sensor Platform & network for Indoor Deployment and Exterior-based Radiofrequency
Short name	SPIDER
Summary of the project	
Project SPIDER aimed to develop an innovative system to support urban warfare operations (urban combat or in trying to handle a terrorist hostage situation) by providing improved situational awareness inside buildings. The main goal was to provide in real-time an indoor map of the building of interest, while detecting and locating human presence inside the same building using data from both indoors and outdoors sensors, presenting that otherwise unattainable information to soldiers, thus ensuring a safer operation. The outdoor subsystem was a network of radiofrequency sensors (radar) that aimed to recognize human motion inside the building, while the indoor sensor subsystem was based on a mobile robot (UGV) capable of sensing the interior of the building using an optical sensor. The video obtained from the indoor sensor subsystem could then be processed using SLAM and human detection algorithms, improving the accuracy of the resulting data by fusing it with the information acquired by the radar. The SPIDER also assured real-time communication of the resulting information to the relevant forces, presenting it in a ground control station (GCS) with a user-friendly, adaptable and intuitive interface, while assuring the security of the proposed solution. All components were studied and developed during the project (some based on modifications to and rework of existing prototypes) and the complete system was tested in the field by infantry users simulating a building assault. These have shown that the technologies and concepts considered are promising and may be useful in the future to military users.	
Project duration	15 months
Starting date	22 November 2016
Total EU Contribution requested	€ 433.225,00
List of participants	

#	*Name of the entity*	*Country*
1	TEKEVER ASDS	Portugal
2	IT Aveiro	Portugal
3	Aralia Systems Ltd.	UK
4	Defence Institute "Professor Tsvetan Lazarov"	Bulgaria