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#EPOS033 FASTER project new technologies evaluation in a simulated earthquake pilot in Madrid during the covid19 pandemic.

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FASTER
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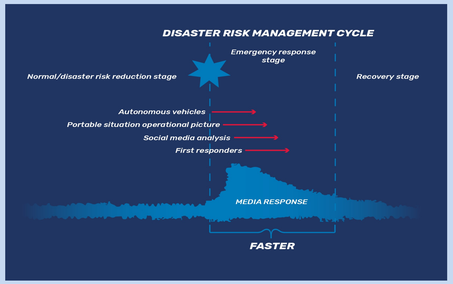
Background:

• **FASTER** [1] (First responder Advanced technologies for Safe and efficienT Emergency Response) is a H2020 funded[2] project that address the **protection and capabilities of first responders** in hazardous environments and disasters. We performed a simulated earthquake pilot exercise to test different tools that can improve the response despite the COVID 19 pandemic in Escuela Nacional de Protección Civil, in Madrid , taken in account the disaster risk management cycle and INSARAG Guidelines[3].



Graphic1: : Disaster Risk Management Cycle

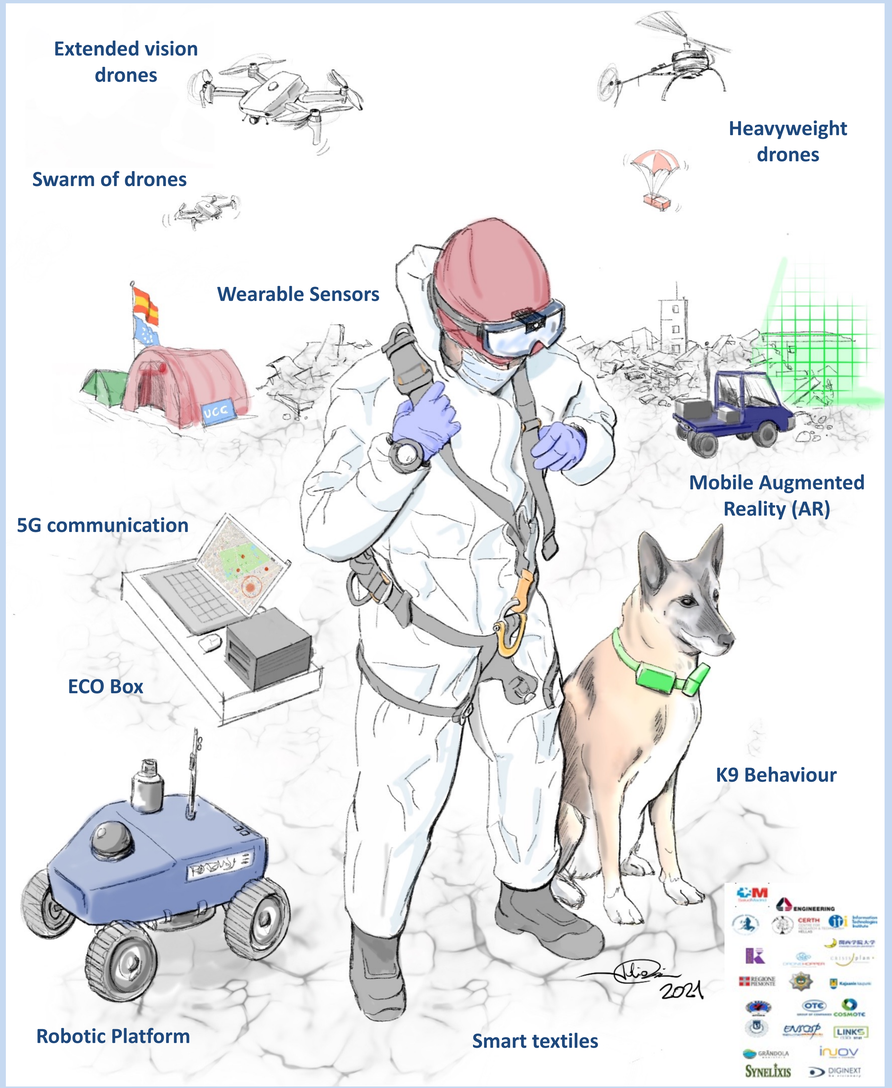
Picture 1: Simulated Scenario

Methods :

Our aim was to **test and prove the FASTER tools in a realistic and complex environment**, gathering user feedback related to the acceptability, usability, functionality, and efficiency. Assessment of the **innovated COVID19 protocol** [3], developed for this situation, to work safely in a natural disaster during this pandemic was also a priority. We designed a simulated scenario within a limited area of collapsed buildings, including several victims needed to be rescued in an urban zone.

USAR ERICAM and Madrid Local Police first responders' teams were deployed during a 12-hour drill, working in various places while observers monitored that all security special measures taken for Covid-19 pandemic were met. The entire exercise is **recorded from the air with drones** of Madrid Municipal Police, to make a professional video that collects all the Pilot's sequences that we could later review. **FASTER tools,** including drones, autonomous vehicles, canine collars and portable command control services **were tested by the researchers through recording, notes and improvement lists.**

This project has received funding from the European Union's Horizon 2020 research and innovation under grant agreement N° 833507.



Picture 2: Iconographie of FASTER' Tools tested in Madrid Pilot[4]

REFERENCES:
1.https://www.faster-project.eu/
2.https://cordis.europa.eu/project/id/833507
3.https://www.insarag.org/wp-content/uploads/2021/03/MWG-Covid-19-USAR-Response-Technical-Guidance-Note-Final.pdf
4 https://www.faster-project.eu/madrid-pilot-3

Results:

Initial evaluation and sectorization of the critical zone with drones provided updates regarding casualties, structural damage and entry points. **Localization and extraction of four victims could be possible sooner with thermal cameras and 3D mapping,** compared to previous scenarios without these tools. The continuous **evaluation of K9** members with wearable devices was achieved for the first time in our team. Team operations **followed hygiene and social distancing standards without interfering in the main mission.** FASTER tools have been testing their acceptability, functionality and effectiveness, taking in account with this key-performance indicators.

Picture 3: K9 precise location

Picture 4: Drones monitoring devices

Conclusion & Discussion :

The tested devices **optimized the assessment and coordination between commanders and intervention teams**, improving prioritization, and reducing coordination, logistics and assistance times compared to previous exercises made without the tools. The use of **ground robots** in the initial ASRs reduces the need for in vivo approach of the professionals, **reducing the exposure of professionals to biological risk.**

The exercise allowed **gathering of user feedback** for incorporation into future tool development **that could improve disaster response**.

The **Monitoring of health and social distancing** during the scenario were performed with safety and it **can be applied in a real USAR Rescue mission** during the Covid19 pandemic.

As a point of improvement we recommend accompanying visual stimuli (lights on the ground and/or beacons) that make it easy to visualise the permitted and prohibited zones, as well as the flow of movement. The marking of dirty and clean circuits was developed in a successful way

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