

FASTER NEWSLETTER

#3



IN THIS ISSUE

3RD ISSUE NOVEMBER 2020

- 03 THE FIRST 18 MONTHS OF ACTIVITY
- 04 THE FIRST PERIOD EXPERIENCE WITH FIRST RESPONDERS
- 07 FIRST FASTER GREEK INTEGRATION TEST
- 10 TRAINING FIRST RESPONDERS ON USING THE FASTER TOOLS
- 14 THE FIRST PILOT OF FASTER PROJECT IN MADRID (SPAIN)

THE FIRST 18 MONTHS OF ACTIVITY

“
FASTER has reached half of its lifecycle! In the last six months a lot of results have been achieved
”

including: a first version of the prototype for the smart textiles framework (biometrics and environmental modules), K9 collars (including a mobile application to locate in real time the dogs), UAV gesture recognition were connected to real UAV, several tests in outdoors environments with autonomous cars has been carried out, a mapping tool was developed to collect drone photos and combine them into a high-resolution ortho-mosaic map, and a first version of ResCuE (RESilient CommUnication Equipment) was developed and tested in laboratory trials.

Moreover, all tools designed for use by individual first responders

were integrated within the FASTER infrastructure and a test report guideline was defined for all partners in order to coordinate the integration activity.

Most of the above solutions have been tested in a field Integration trial, held in Greece on October 2, and in the first pilot held in Madrid on November 17.

Furthermore, FASTER has been presented in several national and international events with the aim of spreading the project knowledge and finding new stakeholders to collect feedback and determine user requirements for the FASTER tools. ■



Greek pilot tests, October 2020

FASTER PLANNED MILESTONES

May 2019	FASTER start
October 2019	User requirements and use cases
April 2020	System architecture designed and components specified
October 2020	First integrated tool and Components Versions Delivered
January 2021	First Pilots Completed
October 2021	Updated Technologies based on the first Pilot
January 2022	Start of final Pilots
May 2022	Official presentation of FASTER system

FIRST 18 MONTHS ACHIEVEMENTS

September 2019	Communication material presented
October 2019	User requirements and use cases submitted; Dissemination plan submitted
January 2020	Technical specifications defined Innovation Strategy plan defined
April 2020	System architecture defined
October 2020	Component Versions Completed and Integration test done

THE FIRST PERIOD EXPERIENCE WITH FIRST RESPONDERS



Image from the greek pilot, October 2020

The FASTER project is now halfway through, year 2020 has been very difficult for direct relationships, and the project had its last physical meeting just before the lockdown in February 2020. The urgency to involve First Responders as stakeholders and the lack of in-person meetings stimulated a creativity for alternative solutions.

Following a planned methodology aiming to create awareness, FASTER turned to virtual meetings and simulated trials, in which the project's technologies could be simulated and First Responders would have the opportunity to comment and give suggestions, improving the consultation mechanism.

First Responders are often familiar with running exercises in simulating scenarios and testing their protocols and tools. As their motivation and involvement is a major concert of the FASTER team, even in this time of social distancing and travel restrictions, we experimented with the use of Role-Playing Games (RPG) as a remote-friendly way to introduce new technologies to their intended users and collect feedback. The process started by focusing on the design of scenarios for the RPG, shaping them to suit the needs identified in potential FASTER pilot scenarios.

A role-playing game is a game, in our situation an exercise, in which players assume the roles of characters in a fictional setting. Players take responsibility for acting out these roles within a narrative, either through literal acting, or through a process of structured decision-making regarding character development. Six game principles coming from the study of literature on games and motivation (Mariais, C., Michau, F., & Per-

nin, J. P. (2010)), has been applied modified according to FASTER needs and are summarised in the following table (Table 01):

As a result of the application of Role Play Gaming in several stakeholders meeting, sometimes in a hybrid way, FASTER team collected some comments on technologies applied that are now in the hands of the technical team (Following page, table 02).

A general comment was received related to training around these new services: the possible added value of "mutual learning" and the FASTER stakeholder group provided a good experience in that direction involving different corps and associations in a common experience. Other comments received are related to:

- technologies' usability and easiness to be used that is mandatory during emergencies.
- integration with existing protocol and projects should be considered.
- automated images analysis to detect damages is also welcome.

Some concerns were also addressed about the possible cost of FASTER technologies.

Experiences done, although deeply affected by COVID19 pandemic, where extremely positive. The project team has just addressed most of comments received and the team is now waiting the start of first round pilots to run further stakeholders' meeting to address their follow-up. Should you be interested to host a stakeholders' meeting involving your colleagues or to participate to the next one please write an email to the address: info@faster-project.eu ■

Principles	Characteristics	Description	
Game principles			
Form of competition	Form of competition	Competition is:	between teams between individuals
	Type of Victory	Victory rests on:	A raking of participants according to existing emergency management evaluation parameters
Playing a role	Realistic scenario with specific competences requested	The narrative scenario is:	Close to the real-life emergency context transposed into a virtual one well described
	Degree of fiction in the narrative scenario	The narrative scenario is:	Highly realistic
	Similarity to the real life role	The first responder plays a role that is:	Identical to their real-life first responder role
	Immersiveness of the IT environment	The RPG scenario is implemented in	A simulation environment, where it is available, or supported by multimedia material
	Special abilities associated with a role	The roles:	Participants have specific abilities according to the expected competences in emergency management linked to their roles coupled with dedicated FASTER technologies available
	Choice of roles	The roles:	Can be chosen according to the emergency scenario and the team needs
	Permanence of the role	The role played by each first responder	Could be varied according to the emergency need and the player competence
Being subject to chance	The impact of involving an element of chance	The impact of involving chance is:	Positive
	Subjects impacted	The element of chance impacts	The overall first responders team is engaged in chance impacts effects
Managing emergency situation	Qualification of the crisis situation	First responders is confronted with:	The game master and the first responders commander will ask specific decision to be taken related to the use of FASTER technologies in the emergency situation.
Other Motivation Factors			
Acting as a team	Type of team action	The activities are:	Cooperative
	Methods	Cooperation takes place	Between all participants acting as a unique team
Receiving recognition	Type of information sharing	Recognition is shown by sharing:	results are presented in dedicated reports and during plenary events
	Personalisation	First responders have the option to personalising	Their character
	Feedbacks / Notifications	The scenario includes:	A debriefing phase in which feedback and comments are collected and used for opening discussion with the technical team



Technology	Use description	Stakeholders' experience assessment
Portable Common Operational Picture	<ul style="list-style-type: none"> -Search for the best access route to a critical point. -Determination of shorter and safer exits from the hazardous area (gas leakage, danger of building collapse) -Easy zoning of search areas -Situational awareness 	<ul style="list-style-type: none"> -see a map of the area (identification of available data and sources to be disclose) annotated with team member positions -additional information relevant to the mission: level of precision of inside building localisation -send instructions and info to team members' devices -see the feed of any camera devices in the team: are the existing fire fighters cameras integrated
Social media analysis	<ul style="list-style-type: none"> -Monitor the information shared in Twitter to: <ul style="list-style-type: none"> o Classify Extract meaningful information about emergency events o Detect emergency events o Estimate impact figures from the extraction of named entities 	<ul style="list-style-type: none"> -Need to better understand how those data are influencing the dashboard (portable and in the crisis room) -Data should be in direct relation with the emergency context
AR for operational situational awareness	<ul style="list-style-type: none"> -Intuitive and non-disruptive display of information Effective tool for decision-making -Enhance the situational awareness FRs / Victims localisation -Vision behind obstacles -Display of route planning to reach a specific point 	<ul style="list-style-type: none"> -Instructions by the Commander: A top-down map annotated with the outdoor/indoor positions of your team members -Any other info and schematics sent to you by the PCOP Extended vision -That's real time vision behind obstacles, where you can't see but your drone can -Drone camera feed: possible integration with 3D lidars maps -Possibility to compare satellite and current views
Small drone (single)	<ul style="list-style-type: none"> -UxV navigation with single-hand gestures No need for hand-held controller device 	<ul style="list-style-type: none"> -Simulator needed soon
Small drone (swarms)	<ul style="list-style-type: none"> -Heavy drones not yet addressed 	<ul style="list-style-type: none"> -Simulator needed
Heavy drones	<ul style="list-style-type: none"> -Drone swarm orchestration for faster mapping and greater coverage 	<ul style="list-style-type: none"> -Not completely clear the possible use
Autonomous Rover	<ul style="list-style-type: none"> -Up-to-date map of the affected area 	<ul style="list-style-type: none"> -The Summit-XL rover can drive over or around obstacles and navigate tight spaces. -It can be useful to scout unknown situations without exposing human team members to danger. -It can operate up to 50°C, so keep away from fires. -It is equipped with a normal camera, a thermal camera, and a 3D depth sensor.
K9 management	<ul style="list-style-type: none"> -Identification & follow of the dog's position during the search. -Analysis of the dog's movement to evaluate the effectiveness of the K9's work. -Possibility of giving orders to the dog when it cannot hear the handler's voice. -Possibility of Contacting the victim when the dog can access it. -Recognizing the marking of a victim when the handler cannot see the dog 	<ul style="list-style-type: none"> -K9 training path are not standardised so interpretation of barks. For instance, in Poland, dogs are trained to mark explosive devices without barking or touching a dangerous object.
Resilient Communications Support: 5G	<ul style="list-style-type: none"> -First responders can use their own communication network - it is not dependent to commercial network -Devices are connected together via 5G network -fast communication between operators 	<ul style="list-style-type: none"> -Better explanation of actors needs to operate it to be assessed. -Need to better understand the potential of 5G use during operations.
Mobile and Wearable technologies	<ul style="list-style-type: none"> -Send to COP updates on position, status activity Send to COP geo-localized situational pictures Receive from COP text messages Receive from COP missions (tasks) and update the status of their execution 	<ul style="list-style-type: none"> -The technology was appreciated there are expectation how it could be used
Resilient Communications Support: RESCUE	<ul style="list-style-type: none"> -Notification of victims of the start of search tasks. -Encourage victims to receive feedback from them if they are able to do so -Warning of possible dangers to be taken into account 	<ul style="list-style-type: none"> -Used in the first Finnish scenario with public advise function during a terrorist attack
Building sensor analysis and visualization	<ul style="list-style-type: none"> -3D model of the disaster site building on Command PC Navigation to victims, fires, exits -Track sensor readings in the building (temperatures, person count, CO2, smoke, open/closed doors, movement in rooms) -Visualizing critical event locations (such as fire outbreak or high CO2) -Tracking victim numbers in multiple sections of building Resources available on site: <ul style="list-style-type: none"> o firefighting tools, o fire walls, o ventilation sectors 	<ul style="list-style-type: none"> -Stakeholders have great expectation from sensor linked with AR. The issue is if the technology could use only dedicated sensors

FIRST FASTER GREEK INTEGRATION TEST

On Friday, October 2, 2020, FASTER's Greek partners HRTA, CERTH, UniWA, and OTE participated in the first field Integration test in order to demonstrate their tools and test their interoperability outside the lab, in realistic conditions. The event, organized by HRTA, took place outdoors, at an abandoned mining site and six FASTER tools were involved. Accessible only by 4x4 vehicles, sporting derelict buildings, with no grid power and no mobile phone signal coverage in the area, the pilot site was chosen to pose a challenge.

Demonstration and testing

The integration test started with a brief presentation from HRTA about the typical operations and established protocols in order to ensure safety for all the participants. The necessary safety equipment was prepared and provided while the technical teams set up and tested their equipment and tools.

The first step included the set up of the Open Air Interface by OTE team, while a traditional local Wi-Fi network was also set up in order to note the differences between the two modes. A KAFKA message broker, serving as the central hub for most information exchanges, was set up and all devices – smartphones, wearables, laptops, and the HoloLens – tested their connection status. Regarding this tool, OpenAir Interface as most FASTER tools, depend on network connectivity, either to the Internet or to a local network that all interdependent components can connect to. However, Internet connection is not a given in disaster response operations, as remote areas may have little or no 4G signal and the disaster itself may impact such in-

frastructure. Local networks, on the other hand, although more versatile have limited range that can hardly cover the whole area of operation. OTE's OpenAir Interface harnesses the range and bandwidth of 4G and deploys it as a local wireless network, allowing all 4G capable devices – including smartphone and 4G SIM dongles – to connect with each other over a large area.

At the second step, with all connections in order, CERTH introduced Gesture control and AR vision for drones to the HRTA team. What is drone gesture control? Drones can be invaluable in response operations, allowing FRs to scout behind obstacles or in unsafe zones quickly and without endangering their lives. A drone remote controller requires use of both hands and can have a steep learning curve, as one hand controls the drone's attitude while the other controls rotation and altitude. With gesture control, FASTER introduces a single-handed control mode that allows the full range of drone navigation commands while, requires no hand-held remote, leaves the off hand free to perform other tasks, and is much more intuitive and easy to learn. In addition, the drone's camera feed can be displayed in an augmented reality headset, keeping the pilot mobile and aware. After teaching them the control gestures, a member of HRTA team was invited to try it out in some test flights. Several such were completed,

using two drones: a DJI Mavic 2 Pro, and a smaller DJI Mavic Mini. After some shorter flights close to the trainee, the drone was sent to scout through the window of a nearby abandoned building, rehearsing a possible search for victims. After getting some experience piloting the drones, our trainee wore the HoloLens and was able to see the drone's camera feed in augmented reality while flying it.

For the third step, UniWA set up MORSE and trained two volunteers from the HRTA team to demonstrate its use and gestures. MORSE system uses wearables (smart watch) to capture specific gestures, translate them into predefined messages, and transmit them to a colleague's wearable device, which vibrates in a pattern unique to each message. A small set of hand gestures (i.e., 5 at the moment), selected to be unlikely to trigger involuntarily, can thus be corresponded to a set of emergency messages to request aid or send a warning.

In the course of a mission, first responders may find themselves unable to communicate verbally, due to excessive noise, smoke or injury. For MORSE, two scenarios were tested, one with the two volunteers standing with their backs to each other and rehearsed exchanging messages using MORSE gestures and one with them being separated from a wall so that visual contact was prevented.

On the fourth step, UniWA's team tested ResCuE range under multiple conditions and in several locations in the field to grasp how the collapsed buildings affect its range and performance. The ResCuE boxes are communication relay devices independent from any infrastructure. Each node can communicate with nearby nodes as well as an Android application. A relaying mesh of ResCuE nodes can be used to facilitate communication with team members or victims/ civilians, when conventional telecommunications are unavailable, due to damage or no signal penetration inside buildings or underground.

Following that demonstration, according to the plan for the fifth step, Smart Textiles Framework was prepared to be tested by an HRTA team member. First responders' safety is of highest priority in any response operation. The Smart Textiles Framework comprises of a vest with integrated sensors that monitor a first responder's biosignals (such as heartrate) and an environmental module (integrated with sensors to measure temperature, CO and humidity) that collect and transmit data to the First Responder's smartphone, which will raise an alarm in case of abnormal or dangerous readings.

After checking its connection to the base station, the volunteer went for a short but strenuous walk, including periods of jogging and climbing, while UniWA's researchers monitored his vital signs remotely.

Finally, for the sixth step, CERTH team tested Live drone mapping. Good mission planning requires a good knowledge of the area of operations. Although mission coordinators can avail themselves of offline satellite maps, these are days or months old, and a disaster incident can drastically

alter an area's topology. Roads may be blocked by wreckage or abandoned vehicles, building and infrastructure may have collapsed, and fire or flooding can cover large areas. With live drone mapping, a single drone or a small swarm can quickly cover an affected area, taking aerial photographs and combining them into an up-to-date map that represents the current state. This can be invaluable to plan safe entry and exit routes for the FRs, monitor large scale ongoing events like fires or floods, detect victims, and anticipate dangers.

To better understand live drone mapping usefulness and limitations, two researchers played the roles of injured victims. Wearing protective hard hats and watched over by the HRTA team, they sat down among the ruins while the drone scanned the area overhead taking pictures. After a ten-minute flight and another ten minutes of processing, the final map showed a fine detail of the area, buildings and vehicles. While one "victim" was clearly visible, the other was obscured by shadow.

Conclusion

After the conclusion of testing and demonstrations, a candid conversation collected feedback, pointed out failings and difficulties and set possible targets for future developments. All participants agreed that the pilot should be repeated in a few months' time, when the identified integration setbacks will have been ironed out.

This was a very useful and valuable experience, in which first responders got a hands-on look at FASTER's developed tools, and technical partners got a better understanding of the conditions and difficulties present out of the lab, in real response mission conditions. ■



TRAINING FIRST RESPONDERS ON USING THE FASTER TOOLS



FASTER is developing innovative tools to help first responders conduct their work both more safely and more efficiently. However, introducing new technology to professionals can be difficult. By nature, those on the receiving end are not familiar with the innovation, and therefore may not understand the full capabilities of the technology or how to use it. Furthermore, it may be met with resistance, as it threatens to change trusted methods of operation.

On the other hand, technology providers, without a full understanding of the end users' work, may not fully grasp the best application of their technologies. In FASTER, an understanding of the complex environments and intense time pressure in which end users work is also essential. Crucial knowledge, coming from end users, can help to ensure that the FASTER technologies are not only useful, but also well-accepted by

practitioners.

At the beginning of the project, end users and technical partners' discussions led to the collection of User Requirements that allowed development of the tools to get underway. These discussions were quite theoretical, but now that prototypes are further along, users will have the opportunity to actually interact and start training on the tools. This phase is critical, because as users are trained, they are also asked for feedback to steer the continued development until the project enters its final stage.

For these reasons, interaction between technical partners and end users in this phase is very symbiotic. COVID-19 continues to prevent the consortium from holding plenary meetings in person. However, the project is working to achieve as much collaboration as possible in local groups (end users and technical partners

within the same country) and online. While hands-on training is preferred, online training can also be beneficial.

Training as an opportunity to improve

The project's ultimate goal is, having learned the needs and wishes of end users, that technical partners develop innovative, useful, and relatively easy-to-use tools to improve the capabilities of responders. The training within FASTER, therefore, differs from the type of training one would seek when purchasing new off-the-shelf rescue equipment. After all, as FASTER is a H2020 Research and Innovation action, the tools developed are not market-ready. Training within the project therefore has a different aim, namely, for technical partners to inform users of the underlying principles of their tools, to discuss approaches for tool use, and to exchange infor-

mation on the development strategy. This overlaps with other project activities, such as gathering feedback for the collection of end user requirements and evaluation.

It is important to highlight the strong overlap between training, gathering user feedback, and evaluating the tools. Any time users interact with the tools, all of these activities are being addressed. In addition, internal validation of the FASTER tools is performed each

time technical partners share their developmental progress with the project's end users.

The goal of training is for end users to operate the tools as independently as possible. This is more achievable for some tools than others. Also, while for the beta versions of the tools technical partners' involvement and support will typically be more necessary, this need will lessen as the project nears completion and the tools mature.

Augmented Reality (AR) for Operational Situational Awareness

- 1 AR for Operational Support
- 2 Extended vision using mini UAVs

Mobile and Wearable Technologies

- 3 Mission Management Tool (MMT)
- 4 Smart Textiles Framework
- 5 K9 Collar for Behaviour Recognition
- 6 Movement Recognition for FirSt rEsponders (MORSE)

Autonomous Vehicles

- 7 UxVs Gesture Control
- 8 2D area mapping
- 9 3D mapping
- 10 Ground Autonomous Vehicles
- 11 Swarm of Drones for Complex Tasks

Resilient Communications Support

- 12 RESilient CommUnication Equipment (RESCUE)
- 13 5G Communication Network with QoS Monitoring
- 14 UAV Relay for Extended Communication Capabilities

Scene Analysis for Risk Identifications

- 15 AI Scene Analysis from Video Data
- 16 Scene Analysis from IoT Sensor Data
- 17 Scene Analysis from Building

Portable Command and Control (P2C) Centre services

- 18 Common Operational Picture (Global and Local)
- 19 Social Media Analysis
- 20 Building Sensor data visualization



Dedicated training sessions are planned for the FASTER tools before each trial and final demonstration. Furthermore, during project meetings, technical partners are invited to bring prototypes along for hands-on sessions with end users. In addition, technical developers plan meetings or online demos for individual or integrated tools, typically for a smaller audience. In many cases, there are technical and end user partners from the same country. Even in COVID-19 times, it can be possible to get these partners together. Plans for local meetings are therefore also being made.

The primary focus of user interaction with tools leading up to the trial demonstration is more geared at gathering their feedback for continued development. However, in anticipation of the final demonstrations, user interaction

with the tools is more focused on training.

Documenting the feedback from these training sessions is important for keeping track of the user feedback on the tools, on the training methods, next steps, etc. In M12, we created a template to guide the collection of feedback. Its use has proved beneficial so far, and partners are encouraged to continue using it to document future interactions between technical partners and end users.

The template, open for the inclusion of any relevant information, guides partners to keep track of the topics discussed, feedback/interaction, and next steps. This information collected during such sessions is useful for a variety of reasons. For example, it will be used to support the second version of user requirements and use

cases, refine the technical development of tools and all pilot-related work, which, in addition to training, includes pilot planning, execution and evaluation.

Training clusters

FASTER will train its users on 20 different tools. While these are considered separately for the purposes of development, in practice some are integrated with others and share user interfaces. In that case, training is more useful when the tool outputs are combined, for example, the 2D and 3D maps visualized on the COP. Furthermore, some FASTER tools are less hands-on than others, such as 5G communication. In this case, end users will be informed about the use and benefits, but not trained on the installation. The table below shows the tools that the end users will be trained on. ■



THE FIRST PILOT OF FASTER PROJECT IN MADRID (SPAIN)

FASTER plans to test and demonstrate its technologies in several “pilot” exercises around Europe, involving realistic conditions and real first responders, its intended end-users.

The first pilot of FASTER project took place on November 17th, 2020 at the National School of Civil Protection in Madrid. Spanning 12 hours, it featured a simulated earthquake and seventy first responder participants.

Municipal Police officers were the first to act on the scene. After receiving notification and arriving at the affected area, they secured the perimeter and made a preliminary assessment of the situation, using drones to carry out a first reconnaissance and create a map to better visualize and understand the degree of damage. Based on this, they defined the necessary access routes to ensure the safe entry of the emergency vehicles to the intervention area. In answer to a request of international assistance, the Emergency and Immediate Response Group of the Madrid Region (ERICAM) mobilised its Medium Urban Search and Rescue (USAR) team, established the USAR Coordination Cell (their command center) and began performing Assessment, Search and Rescue tasks.

The seventy first responder professionals participating are all active first responders based in Madrid, including specialised health personnel from Servicio de Urgencias Médicas de la Comunidad de Madrid SUMMA112, firefighters of Bomberos Comunidad de Madrid, rescue dogs and dog handlers from the Spanish School of Rescue and Detection with dogs (ESDP) and about thirty



ty members of the Municipal Police.

Autonomous vehicles were sent to get further details about hard-to-reach areas that cannot be visualized from aerial mapping. They were used to analyse potential danger in specific environments, confirming their viability and, through thermal sensor, to rule out the presence of victims at difficult access points at ground level. The Helicopter drone allowed the

administration of medication to a rescue victim carrying a syringe carrier within a parachute and geolocator.

As support for SUMMA112, the Physician Catastrophe Coordinator, the Deputy medical director, the SUMMA112 accredited communications specialist, as well as the heads of communication of 112 Agency, the firefighter Deputy Agustin de la Herran, and the Director of the Madrid 112 Security and Emergency Agency

participated in assessing ERICAM's actions. Moreover, an Advanced Life Support Unit with a health professionals team, emergencies physician, nurse and technicians. was available to take care of possible emergencies.

Pilot participants also included the police chief of guard, four pilots from the Air Support Section and three handlers from the Dog Section with their dogs, as well as the Communications and Video Surveillance Unit.

In total, there were 23 operational agents in the field, in addition to another ten who participated from the central station, as well as the Corps' International Relations Unit. vResources brought by the response organisations included two police patrols from Vallecas district on behalf of the Municipal Police, a van from the Security Support Unit (UAS), a truck as a Mobile Command Vehicle. Several tools developed by FASTER have been demonstrated such as:

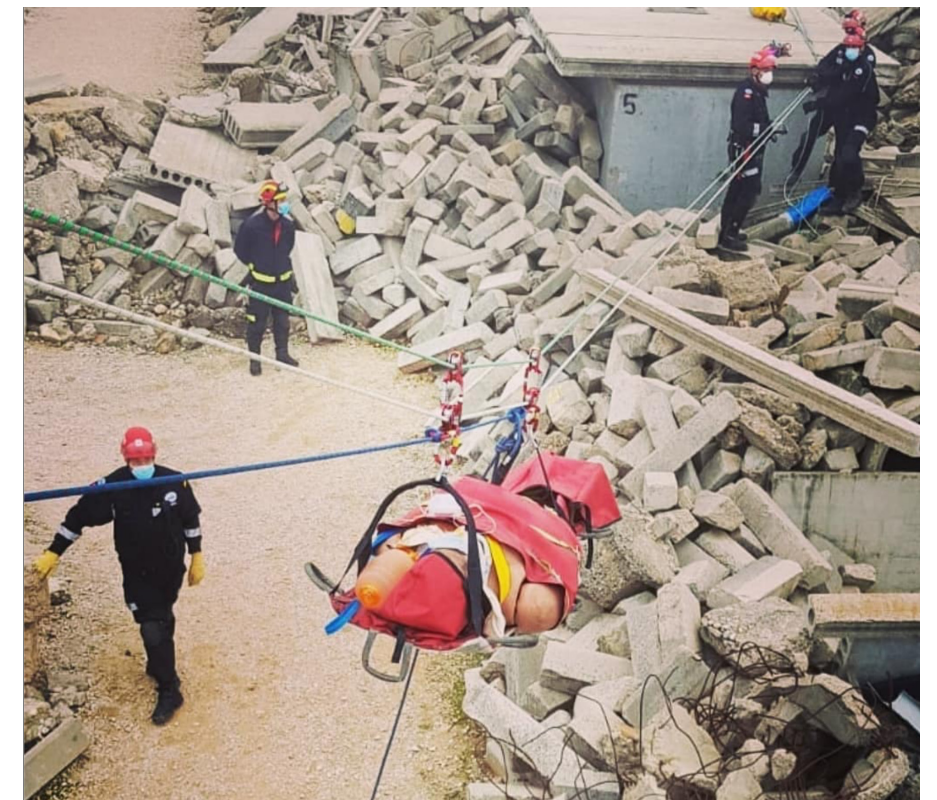
- Autonomous Polaris vehicle, equipped with thermal sensor and image camera, and other autonomous vehicle such as a SUMMIT XXL robot, whose data from laser camera and 3D image could support first responders in areas of risk.
- Drones equipped with 2D mapping tools .
- K9 collars featuring sensors able to capture and transmit in real time motion signals and status of rescue dogs.
- A Portable Command Operational Picture (COP) software collecting all the data from the field.



Helicopter Drone holding a syringe carrier with a parachute, moving across the catastrophe area, towards the patient needed of emergent medication



FASTER project, a journalist interviews Robotnik colleagues about their autonomous vehicles involved in the FASTER project, demonstrated in the Madrid's Pilot on the 17th of November



All these technologies have been used by First Responders and evaluated to improve them.

Due to the current pandemic situation of COVID-19, an action protocol was employed to prevent contagion among participants, based on intra- and supranational protocols, now implemented in the framework of the FASTER project as an added value and innovation action.

The FASTER technical developers DroneHopper and Robotnik, both located in Spain, were present in Madrid to allow practitioners hands-on experience with the drones and rovers. However, FASTER partners joined remotely when possible to get early feedback on their technology as well. University of West Attica (Greece) mailed their K9 collar and offered remote support and training before and during the event. The same can be said of CERTH (Greece) and their software for the 2D aerial mapping, which DroneHopper was able to use, as well as Engineering's (Italy), who offered remote training and support for the Portable Common Operational Picture software, and integrated the mapping results and served as a coordination tool for responders.

Local authorities have visited the National School of Civil Protection to see first-hand how the teams work in an emergency situation, acting as Local Emergency Management Authorities, linking with the USAR Command Coordination Cell (ERICAM Team Leader). The Delegate for Security and Emergencies from Madrid City Council, Inmaculada Sanz, the Regional Councillor of Justice, Home Affairs and Victims of Community of Madrid, Enrique López, the General Director of Emergencies of Community of Madrid, Pedro Ruiz, the Under-

secretary of the Ministry of Home Affairs, Isabel Goicoechea, the General Director of Protection Civil, Emergencies, Leonardo Marcos and the National INSA-RAG Policy Focal Point, Bibiana Andujar, were introduced to the FASTER project.

In addition, several Spanish media sources covered the exercise, including coverage in print, as well as national and regional television.

The FASTER consortium is very proud of the success of this first pilot, able to show impressive results for such an early stage of the project, and in particular, working to safely carrying out the event despite the pandemic. The event was a mark of perseverance in the face of adversity, and a valuable opportunity to allow practitioners to interact with the tools and offer their feedback. ■





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