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Emerging technologies for the Early location of Entrapped victims under Collapsed Structures & Advanced Wearables for risk assessment and First Responders Safety in SAR operations

D8.5 S&R Use Case 4: Forest fire expanded and threat to industrial zone (Kineta, Agioi Theodoroi, Greece) - Pilot plan

Workpackage: WP8 – S&R Validation and Demonstration

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Search and Rescue Project Profile

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	MAGGIOLI SPA (MAG)	Italy
	KONNEKT-ABLE TECHNOLOGIES LIMITED (KT)	Ireland
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1 Plan Form for D8.5 – Use Case 4

Title of UC4:

Forest fire expanded and threat to industrial zone (Kineta, Agioi Theodoroi, Greece)

1. Introduction

Each year, wildfires result to high mortality rates and property losses, especially in the wildland urban interface (WUI), affecting millions of people and have devastating global consequences on the biodiversity and the ecosystems.

The pilot will take place in an urban area mixed with forest that is situated nearby an industrial zone.

It has to be considered that wildfire disasters may rapidly change their nature into technological disasters, e.g. in the mixed areas of forest and residential, heavy industrial, or recycle zones.

This pilot is based on a real scenario that took place in a Industrial Zone; Greece was indeed in danger during the wildfires that occurred in July 2018

A wildfire is initiated by arson. Due to the strong winds and the dry forest fuel, later caused by prolonged heat waves 10 days before the fire incident, the fire expands rapidly towards the residential area.

Huge quantities of smoke are produced and hence the nearby communities are requested by the relevant stakeholders to evacuate. The use of aerial Fire-fighting means is restricted due to the strong winds, so all the forces are operating from the ground.

Due to the specific morphology of the area and the extreme meteorological conditions the fire expands and approaches industrial/critical infrastructure facilities. Because of the dense smoke and therefore reduced visibility some of the workers are trapped inside smoke plume and cannot reach a safe place.

The main objective of the pilot is to test the remote sensing technologies proposed in the S&R project for the safety of first responders; alarms for early warning of toxicity and radiation exposure and generally inspection of the hot zone area; use of RPAS/drones, such as rescue robots to facilitate SAR operations.

2. Responsible End – User Organization

Association of Officers and Sub-Officers of Hellenic Fire Corps (EPAYPS, GREECE)

3. Time (*) and place

The estimated time for the implementation of UC4 is sometime in March or November 2022.

The pilot will take place a weekend during the daytime, at 8.00 a.m. and last 8 to 10 hours, in a region called Lecheo close to the city of Korinthos.

The place of the pilot will be the LECHEO (LEH), Military airport, Corinthia

Longitude: 22° 51' 40.15" E

Latitude: 37° 55' 38.37" N

4. Components (*) / technologies that will be tested

The components that will be tested are:

- 1) Smart Glasses (SIMAVI)
- 2) Smartwatch (KT)
- 3) Emergency response health condition monitoring device (CERTH/HRT)
- 4) Radiation sensors (wearable) (TBD)
- 5) Chemical sensors - Rescue MIMS (NTUA)
- 6) Drones (UHasselt)
- 7) Collaborative drones' platform (UHasselt)
- 8) Rescue Robots & Autonomous vehicles (DFKI)
- 9) Obstacle Detection and Avoidance System (ODAS) (THALIT)
- 10) Volunteer application, (Tech 3.1) (CERTH)

5. First version of KPIs

- ✓ Nb of organizations and users involved.
- ✓ Nb of new requirements recorded.
- ✓ Level of realism of the exercise
- ✓ Level of effectiveness of the smart glasses
- ✓ Operation capability of chemical sensors on roving systems or robotic platforms
- ✓ Effectiveness of the S&R technologies (wearables etc.)
- ✓ Capability of the local network to support dissemination of information among first responders on the field.

6. Participating technical support partners (internal) and other members of consortium S&R as Players, Observers and Evaluators etc

The Association of Officers and Sub-Officers of Hellenic Fire Corps (EPAYPS, GREECE) will be the leader of this Use Case that will take place in Lecheo (LEH), Military airport, Corinthia. The technical partners: NTUA, CERTH, UBI, Uhasselt, DFKI, THALIT, AIDEAS will provide support to EPAYPS as well.

Additionally, the volunteer teams and the Social Cooperative Enterprises (SCEs) which support our project will participate as players, observers, and evaluators.

IDAFK (approx. 50 persons)

SEP P.P. (10 persons)

O.A.N.E.A.N. (4 persons)

Volunteer Team Forest Protection and Rescue Evoia (8 persons)

S.A.R. – 312 (10 persons)

RT DELTA (10 persons)

Hellenic American search rescue team (5 persons)

PROTECTA of ILION (4 persons)

ΕΠΙΚΟΥΡΩ ΕΜΑΣ / ACCIST EMAS (4 persons)

THIVA AIR (2 persons)

Additionally, EPAYPS members will participate into the specific use case and the pilots of the drones.

7. External Participants as players, evaluators, actors-guests in UC

We will invite representatives of Hellenic National Defence general staff, which provided the place where the UC4 will take place, and the Local stakeholders (Regional governor, Mayor, Fire department and civil protection authorities) to attend the pilot as observers. However, the level of their involvement is dependent on their availability at the time of the pilot and their willingness to participate; both of which are too early to verify.

8. Ethics Approval

All players, evaluators, and actors will complete a consent form to participate in the pilot.

9. Gaps/ Problems that should be closed and context in which they appear

Some risks can be the following:

- availability of all required partners and respective tools needs to be assured
- potential travel restrictions will have to be kept in mind (Covid regulations and potential new restrictions)
- readiness, interoperability, and proper functioning of S&R tech. solutions
- the equipment may not work
- the data cannot be transferred - trainees need to be aware of the S&R technologies in use and how to use them (briefings) to ensure adequate testing
- the weather conditions.

10. Certificates of Participation

A certificate of attendance prepared by EPAYPS -the local organiser- will be handed out to all participants in the specific use case (UC4), which will help them demonstrate the acquired knowledge.

11. Planning Team of UC

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