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RESCUER
HERO COGNITIVE
SUPPORT



HERO COGNITIVE SUPPORT Modules

AR INTERFACES:

Provides AR representations of the RESCUER modules' outputs and interactions to first responders on 2 displays: HoloLens2 and Smart Helmet.

BIO SIGNALS MONITORING:

Measurement of heart rate, skin conductivity, skin temperature, pupillary response.

COGNITIVE LOAD BALANCING:

Prevents excessive cognitive load by selecting which information can be displayed.

INFO PRIORITISATION & DATA ORCHESTRATOR:

Collection, processing and prioritization of information sent to FRs.

AR INTERFACES:

- Provision of an interface to increase the situational awareness of the user by enhancing vision in adverse/low light conditions and providing augmented reality information.

BIO SIGNALS MONITORING & COGNITIVE LOAD BALANCING

- Provision to first responders with specialised monitoring systems to track health status and
- Prevention of excessive cognitive load (CL).

Several devices will monitor and record relevant biosignals from first responders, specifically: heart rate, respiration rate, galvanic skin response, masseter muscle electromyography activation, body temperature and superficial temperatures. All six biosignals and the eyes' movement are obtained and recorded on the biosignals monitoring system.

INFO PRIORITISATION & DATA ORCHESTRATOR

- Info Prioritisation is designed to assess and prioritise all the incoming information from the RESCUER modules' outputs to enhance FRs situational awareness and, by prioritizing information, to support the FR's cognitive load balancing. The level of priority of information has been set by the first responders members of the consortium.
- Data Sharing Orchestrator Service consists of two components: 1. the MQTT Broker and 2. the Data Sharing Orchestrator (DSO) module. The goal of the MQTT Broker is to orchestrate/ regulate the amount of information that each of the First Responders should receive, based on its priority, the cognitive state of each first responder and other performance parameters, such as network availability and energy constraints of the hardware hosting the orchestrator.

