RESILIENT TRANSPORT INFRASTRUCTURE TO EXTREME EVENTS

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PURPOSE

There have been great achievements in transport infrastructure e.g. bridges, tunnels. These structures are however susceptible to extreme events:

- natural causes e.g. earthquakes
- physical causes e.g. mechanical impact
- man-made incidents e.g. accidents
- cyber-attacks

The overall goal of the project is to increase the resilience of seamless transport operation to natural and man-made extreme events, protect the users of transport infrastructure and provide optimal information to the operators and users of transport infrastructure. The project addresses critical structures (bridges and tunnels) subjected to all types of extreme physical, natural, and man-made incidents, and cyber-attacks.

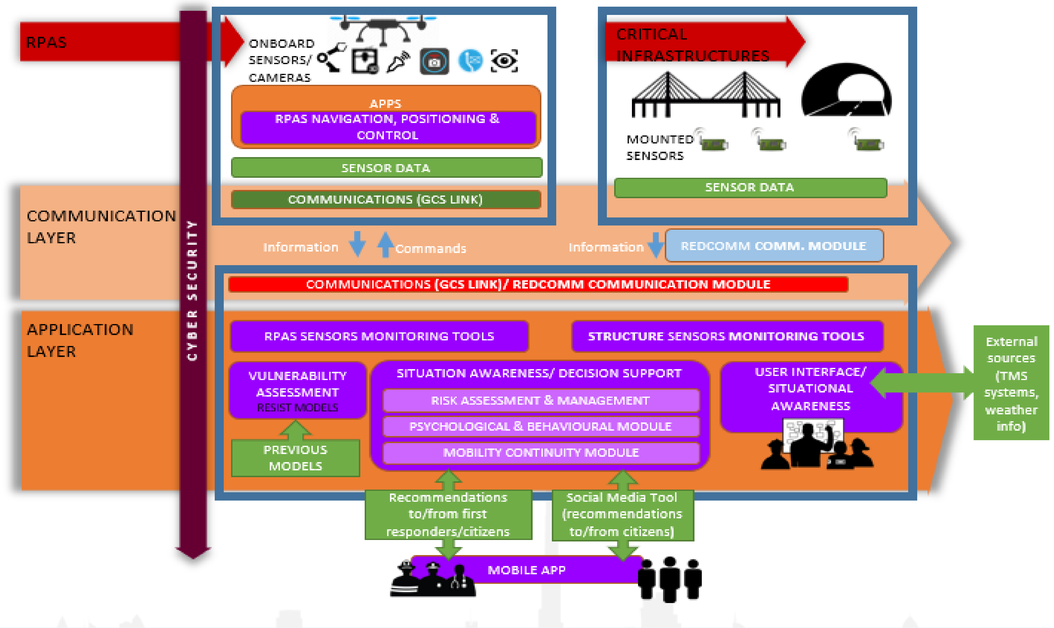
METHOD(S)

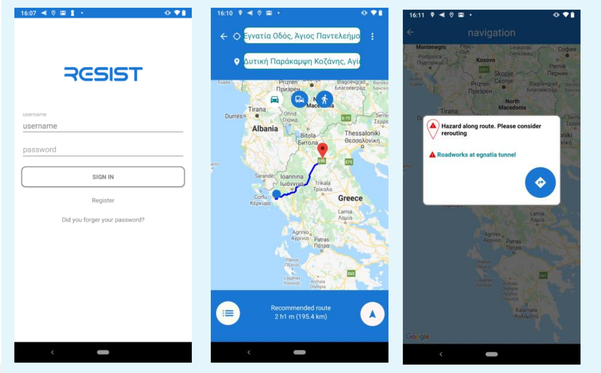
To increase resilience RESIST aims to develop an integrated, interoperable and scalable safety/security platform to offer high levels of resilience and secure the nearly seamless transport operation in the event of critical structures subjected to extreme events.

This will be done by a multi-level approach which includes tools and technologies for designing

- preventive and predictive strategies for transport network resilience in terms of vulnerability and predictive analysis and risk assessment,
- reactive strategies in terms of emergency secure communication and on demand rapid and accurate robotic in-depth structural damage inspection of critical transport structures (after disaster) for offering situation awareness to the control and (re)routing options to the users.

RESULT(S)





CONCLUSION(S)

The RESIST project provides a holistic approach to the increase of resilience in the transportation sector with the use of robotics and ICT tools allowing for a closer connection between the infrastructure managers/owners and the actual users of the infrastructure (i.e. the drivers).

The actual integrated system will be field tested in two pilots taking place in real, operational infrastructure namely the T9-T11 bridge in Greece (Metsovo area) and the St Petronilla tunnel and Millaures Viaduct in Italy.

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