Emergency system and tracking solution for taxicab drivers

Taxi Alert

The TaxiAlert is a device installed in a taxicab, providing a "Panic" button that is hidden near the driver's seat that can be pressed when the driver feels threatened by a passenger.

Taxi-drivers' killings has been a serious problem in Portugal in the past years and fighting this problem has become a priority from the Portuguese Government. It is expected that TaxiAlert will help to reduce the amount of attacks against taxi-drivers.

The device is very simple: GPS receiver + GSM modem. When the "Panic" button is pressed, it starts sending the vehicle's GPS coordinates by SMS to a central server, which has a Geographic Information System (GIS) that is currently based on Google Earth.

The mapping of GPS coordinates on Google Earth, together with some layers of information prepared by the police, provides a fast visualization of the taxi-location and the nearest police force.

The central server operator can make a one-way voice call to the device and listen to audio inside the taxi. This is very useful to evaluate if the situation is life-threatening.

Taxi Alert can be easily integrated with external emergency systems. There is also an API available that can be used by external systems such as 911 or security companies to send alarms to the police forces.

FEATURES

Taxicab device
- Panic button
- Remote management and configuration
- GPS Coordinates sending through SMS
- Tracking mode support
- Remote audio monitoring using GSM voice calls

Server
- False alarm prevention mechanism with pre-alarm signal
- Duplicated alarm filter
- Centralized data and alarm management in the Web BackOffice
- NMEA/RMC coordinates standard format support
- User role management for responsibility assignment
- Integration with police forces
- Real time tracking of events
- Embedded GIS system for tracking representation: GoogleEarth

Other features
- API for third-party integration and external alarm handling
- Scalable architecture to provide support for thousands of vehicles
- Cost-effective system, with a low cost server infrastructure
- Completely based on free technologies:
    . JAVA + WEBServices + Jakarta Tomcat
    . PostgreSQL + GoogleEarth