



112 model checks out

The Czech Republic has successfully simulated the PSAP 112 operating system creating a model which will form the basis for the subsequent eCall service implementation.

As part of the CONNECT Euro-regional project, a pilot project was carried out in the Czech Republic during 2007 to verify that the Public Service Answering Point (PSAP) could handle eCall data. The Czech equivalent of the PSAP is the Telephone Emergency Call Centre called TCTV 112 which was established in 2004 to handle the uniform European number 112.

The pilot study and testing did not take place in the real PSAP 112 environment but on a testing platform of this service which simulated the PSAP 112 operating system and enabled testing and simulation of virtually the entire functionality of the real system by means of a specially assigned test number. The partners involved in the project were:

- Czech Ministry of Transport who submitted the project
- The Czech Fire Brigade which coordinates the E112 line and provided expert opinion
- Telefonica O2 Czech Republic who were the main supplier and system integrator of the project solution
- NextiraOne who dealt with the call centre issues of the PSAP project
- MediumSoft who dealt with the eCall application superstructure in the PSAP

Telematix who dealt with the OBU, and were consultants for telematics services and the ITS applications.

The pilot project architecture design had to comply with certain basic requirements. The recommended transmission of the MSD (Minimum Data Set) between the OBU (On Board Unit) in the car and the PSAP required a parallel data transmission together with voice connection. It was also required that eCall data should be displayed to the eCall dispatcher within a certain predefined time whilst at the same time maintaining voice communication with the vehicle crew. In the Czech Republic the fire brigade is the co-ordinator of the emergency 112 line and it was their preference that eCall data should be integrated into the existing technology of the PSAP service and that the eCall service should be incorporated into the existing model of handling emergency calls in the Czech Republic. Finally, as no final standards for eCall had been agreed in respect of the transport protocol for the MSD data and for the specification of the MSD content, the project had to be designed despite the absence of

final standards, in particular in the choice of transport protocol for the MSD data and for the specification of the MSD content.

That being so it was decided to use a well-tried multi-frequency DTMF (Dual Tone Multi Frequency) transmission for the pilot. The content of the MSD was based on the definition agreed in 2007 and included control information, VIN (Vehicle Identification Number), time, latitude, longitude and direction.

How the Czech pilot works in practice

A vehicle unit equipped with a SIM card of any mobile telephone operator or eventually even without the SIM card, creates a connection to the emergency telephone centre using the 112 number. The connection contains two parts –

“A testing platform enabled the simulation of virtually the entire functionality of the real system”

data and voice. Where the driver is incapable of communicating it is quite important to send the data prior to the beginning of the voice communication between the vehicle driver and the eCall 112 call taker.

The call goes via mobile telephone network and is delivered through O2 fixed public network to the locally appropriate PSAP 112 centre. Subsequently, after the acceptance of the eCall by the PSAP 112 central office, the transmission of the MSD generated by the OBU is launched via the DTMF protocol. By means of CTI (Computer Telephony Integration), the PBX (Private Branch Exchange) transfers the received data to the PSAP 112 application superstructure and, at the same time, it passes the call to the call taker who is on hand.

The PSAP application superstructure decodes the MSD and interprets its content to the same call taker through an appropriate format on the screen of the PSAP 112 application.

The call taker is visually and acoustically informed about the fact that the incoming 112 call is an eCall. Moreover, the call taker is presented with a processed version of MSD. Apart from basic information like the VIN, eCall activation mode, driving direction of the vehicle and type of the activation, the digital map displays the location of the point of eCall origin. It displays both the area of the approximate point (data on the assumed position as obtained from the mobile operator) and the position determined by GPS coordinates, including the direction of the movement. Within the PSAP system the call taker classifies the event in question according to its character, eg traffic accident, eCall activated manually, etc., once the call taker has concluded from the accepted information that no false alarm or testing call is involved.

In order to ensure the cooperation with the Integrated Rescue System units, the processed eCall event is further transformed into the so-called data sentence. What is being transmitted is, in particular, the data contained in MSD, information about the road (type of the road, road km, driving direction) on which the vehicle was likely to have been moving immediately before the eCall initiation, and other information identified by the PSAP call taker (level of caller's communication, phone number for call-back). The generated data sentence is passed to operating centres of Integrated Rescue System units via communication at the TCP/IP level.

Telefónica O2, the first convergent operator in the Czech Republic, successfully completed the eCall project based on upgrading of the existing technology for handling emergency line 112, and it is prepared to support the participation of the Czech Republic in the European testing of the eCall service. The eCall project developed and successfully tested through the described pilot project will constitute a basis for the subsequent eCall service implementation in the real environment of the PSAP 112 system as soon as the appropriate European standards of the service are issued. The standards will be binding for all Member States that have signed the Memorandum of Understanding – the Czech Republic signed in 2007. According to schedule, the process of standardisation should be completed by the end of 2008.

Source: ITS&S Czech Republic