

Development of eCall for Malaysia's Automotive Industries

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Abstract

Road accidents are one of the most common causes of death among Malaysian citizens. The common problem when accident happened is drivers often have inaccurate awareness of their location, especially on interurban roads or abroad. There are also victims who are injured or trapped and they may not be able to call emergency Call Centre. The scenario may be worsen if there are no witnesses or passers-by near the victims to assist them. In order to decrease the rate of fatal accident in Malaysia, eCall system is proposed. The main objective of this research is to develop eCall system that can transmits a call to the public service answering point along with certain vehicle related information using microcomputer, GSM and GPS technologies. The eCall system is able to work automatically or manually depends on the victim's need. As such, collision detection and voice communication algorithm has been designed. For the collision detection, algorithm has been developed based on the data acquired from gyroscope and accelerometer. The location of incident has been identified using GSM cell phone and GPS location capability. The device has a corresponding infrastructure of Public Safety Answering Points (PSAPs) for the voice communication to inform the emergency response unit about the accident, the level of seriousness and the location of the incident. The eCall prototype has successfully designed and developed. Experimental results shown that the prototype is able to detect collision, identify the GPS coordinates of the accident and able to transmit sound wave from speaker to microphone, to be forwarded to the emergency Call Centre.

Keywords

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