

Monitor Vehicle Speed Using Internet of Things Based Wireless Sensor Network System

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Abstract : Road traffic accident is a major problem in Ethiopia, resulting in the deaths of many people and potential injuries and crash every year and loss of properties. According to the Federal Transport Authority, one of the main causes of traffic accident and crash in Ethiopia is over speeding. Implementation of different technologies is used to monitor the speed of vehicles in order to minimize accidents and crashes. This research aimed at designing a speed monitoring system to monitor the speed of travelling vehicles and movements, reporting illegal speeds or overspeeding vehicles to the concerned bodies. The implementation of the system is through a wireless sensor network. The proposed system can sense and detect the movement of vehicles, process, and analysis the data obtained from the sensor and the cloud system. The data is sent to the central controlling server. The system contains accelerometer and gyroscope sensors to sense and collect the data of the vehicle. Arduino to process the data and Global System for Mobile Communication (GSM) module for communication purposes to send the data to the concerned body. When the speed of the vehicle exceeds the allowable speed limit, the system sends a message to database as "over speeding". Both accelerometer and gyroscope sensors are used to collect acceleration data. The acceleration data then convert to speed, and the corresponding speed is checked with the speed limit, and those above the speed limit are reported to the concerned authorities to avoid frequent accidents. The proposed system decreases the occurrence of accidents and crashes due to overspeeding and can be used as an eye opener for the implementation of other intelligent transport system technologies. This system can also integrate with other technologies like GPS and Google Maps to obtain better output.

Keywords : accelerometer, IOT, GSM, gyroscope

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