

Real-Time Accident Detection and Alert System with GPS and GSM

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Abstract: Nowadays, Road accidents are one of the leading causes of fatalities and injuries worldwide, with delays in emergency response significantly contributing to the severity of outcomes. To mitigate this issue, this project proposes a Real-Time Accident Detection and Alerting System using GPS and GSM technologies. The system is designed to detect accidents instantly using sensors such as Tilt sensor or vibration sensors, which monitor sudden changes in velocity or impact forces. Upon detecting an accident, the system automatically captures the precise location using a GPS module and sends an alert message containing the coordinates and time of the incident via GSM to predefined emergency contacts, including nearby hospitals and police stations. This system ensures a rapid response by eliminating the need for manual communication, which may not always be possible due to the condition of the victim. The hardware is compact and can be easily integrated into any vehicle. In addition to accident alerts, the system can also serve as a vehicle tracking device, enhancing security and monitoring. Overall, this solution aims to reduce emergency response time, improve the chances of survival for accident victims, and contribute to road safety initiatives.

Keywords: Accident Detection, GPS, GSM, Real-Time Alert, Vehicle Safety, Emergency Response

