IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 6, May 2025
Impact Factor: 7.67

Vehicle Tracking And Accident Alert System

Sujit N. Bhandare[1], Prashant R. Mule[2], Yogesh A. Yeole[3], Krushna D More[4], Suhas B. Khadake[5]
TYEE Students [1,2,3,4] SVERI's College of Engineering, Pandharpur. India
Assistant Professor[5], SVERI's College of Engineering, Pandharpur. India

Abstract: *With the continuous growth of urban transportation and the rapid advancement of technology, ensuring road safety has become a critical concern. Despite improvements in vehicle design and traffic management, accident rates remain alarmingly high, often exacerbated by delayed emergency response. This research proposes a comprehensive, real-time Vehicle Accident Detection and Tracking System leveraging modern communication and sensing technologies. The system integrates GPS for location tracking, GSM for communication, and IoT-enabled microcontrollers like ESP32, alongside tilt and 3-axis accelerometer sensors, to detect accidents with high accuracy. Upon detection, the system instantly transmits the vehicle's coordinates and status to emergency contacts or monitoring centers via cloud platforms such as Firebase. The implementation of protocols like MQTT enhances real-time data exchange, while VANET-based routing ensures optimal message delivery. This intelligent solution not only automates accident detection and notification but also significantly reduces emergency response times, potentially saving lives and minimizing damage. The proposed system is scalable, cost-effective, and adaptable for modern smart transportation networks.*

Keywords: Accident Detection, GPS, GSM, IoT, ESP32, VANET, Firebase, MQTT, Real-time Tracking

DOI: 10.48175/IJARSCT-26728