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An Integrated System for Accident Alert Notification, Alcohol Detection, and Vehicle Tracking Utilizing Vibration Sensor, GSM, and GPS Technology

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ABSTRACT:

The escalation in vehicular activity has heightened risks for commuters, resulting in frequent road accidents and significant loss of life and property. This is exacerbated by insufficient emergency response infrastructure. To tackle this challenge, the Accident Detection Project emerges as a pivotal solution. By incorporating an accelerometer into a vehicle alarm system, it detects hazardous driving conditions, serving as a crash or rollover detector during and after an accident. An ultrasonic sensor complements this by signaling collisions caused by obstacles. Upon accident detection, the accelerometer and ultrasonic sensor transmit signals to the microcontroller, which relays an alert message, including the location, via the IoT module to the police control room or a rescue organization. Emergency response teams can swiftly trace the location using the GPS module, viewable on Google maps, facilitating prompt action. This IoT-based system aims to enhance driver safety and efficiency by monitoring and locating accident sites through GPS, conveying coordinates via SMS using an onboard WiFi module.

INTRODUCTION

Global road injuries contribute significantly to major fatalities. Recent surveys from IIHS suggest that implementing IoT systems and notification systems can effectively reduce these deaths post accidents. While uncontrollable behaviors like alcohol and drug usage among drivers persist, automatic crash detection, as exemplified by Tesla, serves as a significant advancement. The core objective of this project is to diminish deaths resulting from delayed or inadequate treatment. The proposed device swiftly detects accidents, relaying essential information to first aid centers with geographical coordinates, time, and angle of occurrence. This prompt alert, sent to rescue teams, aids in saving lives. A manual switch allows termination of messages in non-critical situations, optimizing medical response time. The system automatically notifies rescue teams and police stations via IoT and GPS modules when an accident occurs. Accurate accident detection, facilitated by accelerometers and ultrasonic sensors, ensures efficient emergency response to road accidents.

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2. RELATED STUDY

With the advent of technology and era in every stroll of lifestyles, the significance of car protection has extended and the principle priority is being given to decreasing the twist of fate detection time whilst a coincidence occurs really so the wounded lives may be attended in lesser time via manner of the rescue crew. The Microcontroller on the side of ultrasonic sensor, accelerometer, GPS and WIFI modules shorten the alarm time to a massive extent and find out the website of twist of destiny as it have to be. Consequently, the time for searching the region is reduced and the character may be handled as speedy as viable inside the way to preserve many lives. This system can also need to have large utility opportunities because it integrates the area structures and the network of scientific based totally sincerely services. In the present twist of destiny detection structures; there is the hassle of fake alarms or situations in which right now assist isn't essential. In such instances, the reason force has with a purpose to manually transfer off the alert device and prevent the sending of the message. The twist of fate avoidance gadget allows maintaining away from the normal injuries in an effort to usually upward push up on highways and in town site visitors. These accidents in particular happen thru distraction, unconsciousness, and distance unknown amongst our automobiles. So allow us to remember the Indian roads and we're able to have 2 ultrasonic sensors wherein one is positioned within the front and every other one in the back of the auto. Due to this sensor, we're able to calculate the gap between specific cars nearing us. Thus we're able to discover one of kind motors and we are able to shield ourselves in competition to injuries.

3. AN OVERVIEW OF PROPOSED SYSTEM

Fig.3.1. Working model.

4. CONCLUSION

Vehicular Accidents has usually been a high-quality catastrophe since the inception of Transport System, Statistics indicates a big quantity of harmless lives claimed with the aid of using means of these accidents and Vehicular accidents have seen a surge in today's years, development of generation may be used to put in safety system. This device is a step within the direction of comfortable riding of motors, it makes use of reasonably-priced and reliable ARM as number one controlling board and is interfaced with sensors for impediment detection, Alcohol consumption detection, and accelerometer for coincidence detection and board uses data from those sensors to determine emergency conditions and may ask for help the usage of WIFI module with coordinates from GPS module.

And additionally, tool additionally makes use of many logical sensors because of unavailability or due to rate-effectiveness.

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