SMART VEHICLE TRACKING SYSTEM WITH MOBILE APPLICATION

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Abstract : In Today's world a large number of precious lives are lost due to traffic accidents every day. The common reasons are drivers mistake and late response from emergency services. There is a serious need to have information about the accident detection and communication system in place to save injured persons. A system that sends information message to nearby emergency services about the accident location for timely response is needed. The accident detection is done using Smartphone and GPS technologies to track the vehicle and send messages to the mobile applications. Our basic idea is a brief review on automatic road accident detection techniques to save the injured or effected person. To send notification and message if the vehicle has high-speed and the driver had consumed alcohol. vehicle and provides the most instant and accurate information about the vehicle accident spot.

Key Words: GPS Tracking, Alcohol sensors, Accidental sensor, Android application.

I. INTRODUCTION

Vehicle tracking systems have brought GPS technology to the day-to-day life of the common man. Today GPS fitted cars, ambulances, fleets and police vehicles are common sights on the roads of developed countries. The proposed technology is integration of GPS systems and sensors. All mentioned systems are integrated together and transfer the data to server which is maintained in cloud infrastructures. The GPS technology integration is standard for vehicle tracking the main advantage of proposed technology is sensors based monitoring the vehicle activity.

The sensors are involved to monitor the vital parameter of the vehicles and drivers. The authorized user can retrieve the information about current locations of the vehicle using mobile application. The vehicle speed sensor (VSS) used to invoke the current vehicle speed and if the vehicle is over speeded then message is send to the main user or admin. The user can retrieve the details about the destinations. That is, how far from the current locations and calculates the predicted arrival time using speed of the vehicle. This information's are access through web portal. Our system detects the accidents of the vehicle and send messages to the emergency numbers like ambulances, police stations and nearby hospitals.

The system also detects the alcohol consumed by the driver and sends the message to the authorized user.

This system is user friendly, easily installable, easily accessible and can be used for various other purposes. After installation system will locate target by the use of a Web application in Google map. The system allows to track the target anytime and anywhere in any weather conditions and send the notifications when suspicious activities are detected by the vehicle and the driver.

II. LITERATURE SURVEY

Plenty of research work has been done to improve the performance of agriculture field.

In paper [1] A novel algorithm as well as architecture for the fall accident detection and corresponding wide area rescue system based on a smart phone and the third generation (3G) networks. To realize the fall detection algorithm, the angles acquired by the electronic compass (ecompass) and the waveform sequence of the triaxial accelerometer on the smart phone are used as the system inputs. The acquired signals are then used to generate an ordered feature sequence and then examined in a sequential manner by the proposed cascade classifier for recognition purpose. Once the corresponding feature is verified by the classifier at current state, it can proceed to next state; otherwise, the system will reset to the initial state and wait for the appearance of another feature sequence. Once a fall accident event is detected, the user's position can be acquired by the global positioning system (GPS) or the assisted GPS, and sent to the rescue center via the 3G communication network so that the user can get medical help immediately.

In this paper [2] we suggest a method to intelligently detect an accident at any place and any time and report the same to the nearby `service provider'. The service provider arranges for the necessary help. Accident Detection and Reporting System (ADRS) which can be placed in any vehicle uses a sensor to detect the accident. The sensor output is monitored and processed by the PIC16F877A microcontroller. The microcontroller takes decision on the traffic accident based on the input from the sensors. The RF transmitter module which is interfaced with the microcontroller will transmit the accident information to the nearby Emergency Service Provider (ESP). This information is received by the RF receiver module at the `service provider' control room in the locality. The RF transceiver module used has a range up to 100 meters under ideal conditions. The service provider can use this information to arrange for ambulance and also inform police and hospital.

In this paper [3] we proposed an intelligent system that composed of a GPS receiver, Vibration sensor, GSM Modem and integrated with Vehicular AD-Hoc Network (VANET). The employ of (VANET) by
enhanced Ad hoc On-Demand Distance Vector protocol (AODV) helps these services in finding the optimum
route to the emergency message. The use of GSM, GPS, and VANET technologies allows the system to track.

In this paper [4] this paper presents an arrangement to detect reckless driving or over speeding on highways and by design send tickets to violators over email. In the past, many devices have been proposed but they require human effort. There are no means of control or monitor speed of the vehicles except the use of traffic policemen. Given the huge mileage of driveways, the number of traffic policemen is far from enough to observe and analyze most drivers. The proposed model is advantageous as there will not be any need of traffic policemen and will accurately detect speed rather than maintaining trust in the eye

In this Paper [5]The alcohol sensor used in this project is MQ3 which to detect the alcohol content in human breath. Since sensor has fine sensitivity range around 2 meters, it can suit to any vehicle and can easily be hidden from the suspects. This project is fitted inside the vehicle. The project is designed for the safety of people sitting inside the vehicle.

III. PROBLEM STATEMENT

This system focuses on tracking and monitoring of the vehicle. Once the vehicle is stolen it can be difficult for the owner to find the vehicle, so using GPS tracking system it becomes easy for the owner to track the exact location of the vehicle on the android application. This system can also be used when the vehicle meets with an accident, the message can be send to the owner and emergency numbers with the exact location of the vehicle using android application. This system also has various sensors for accident detection and alcohol detection. This system also detects the over speed of the vehicle and sends message to owner as it may be a case of rash driving.

IV. PROPOSED SYSTEM

The proposed system will track the vehicle and send the details about the location i.e. current location or destination location to the user or the admin. The transmitting data are stored in server which is maintained in cloud infrastructure. The client web portal used to access the server data. The authorized user can access the data. The data are stored according to the vehicle identification number. Initially the vehicle registration is carried out. Each vehicle owner have registered with own user name and password for accessing the web portal.

The administrator maintained the key of the vehicle owner information and vehicle. The administrator only can add and delete the vehicle identification number from server. So it's avoid the manipulation of accessing others vehicle data. The proposed technology based on "sensors" to detect the accidental cases of the vehicle. If accident takes place the message is send to emergency numbers like hospitals, police stations and ambulances and the owner. . And also, if the device detects high-speed or over speed and detect if the driver is drunk, and if so message is send to the owner that the driver is at high-speed. The all details are forward to cloud server through device. The authorized user can access the data real time as well as later.
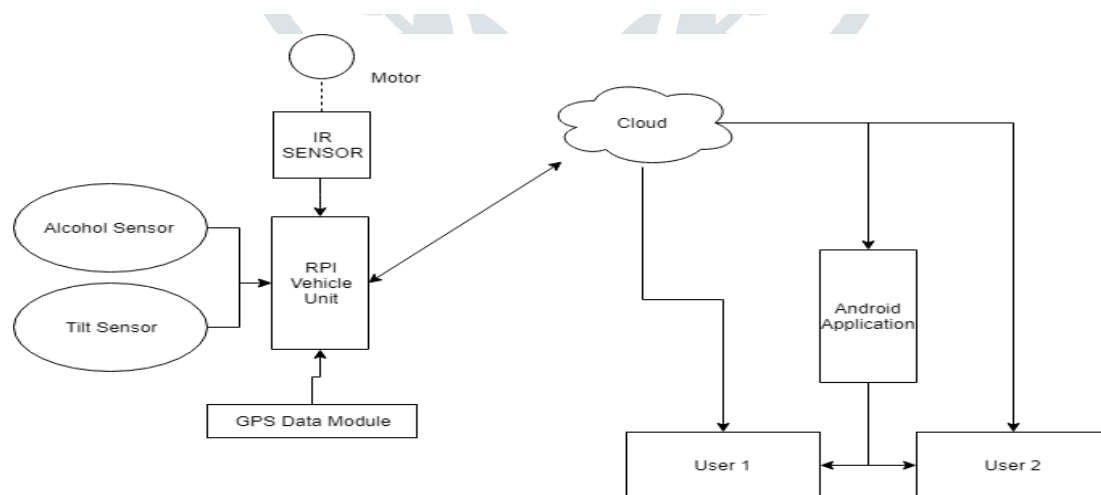

fig 2: proposed system design

V. CONCLUSIONS

Using this system, tracking and monitoring of the vehicle is done. The system as well as android application is easy to use and is feasible and cost effective. The project that we undertook works upon with a sincere effort finding the current location using GPS tracker, High speed of vehicle, Alcohol detection and accident detection of the vehicles.

In the future, we can expand the system to that is can recognize more features and different level of sensors improving vehicle tracking system

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