

SMART TRANSPORTATION MONITORING SYSTEM

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ABSTRACT—in the today's fast moving and insecure world, it is a basic necessity to be aware about safety measures while driving a vehicle. Moreover, the number of road accidents can be witnessed at an alarming growth rate. Many statistics say that most of the accidents are caused due to over load vehicle of transport or due to the over speeding. Knowing where the vehicles are and monitoring every event in real time are the key parameters to be considered while developing the system. Basically, transport system is developed with help of some sensors camera to continuously monitor and give alert when found any activity like over speeding, accident detection etc. This is also essential way to track down the transport. This system is to be implemented for the transport point of view. Most of the transport system face the problem of a traffic heavy maintenance charges for the buses because of careless driving. The implementation of this system using all modern sensors and tools of analysis is very necessary to maintaining of a proper track.

KEYWORD: *Transport, Monitoring, Modern, Sensors, Camera, Security.*

I. INTRODUCTION

When an auto crash occurs suddenly, the reaction of the emergency services now becomes a race between life and death. Today, wireless innovation has tilted the odds in favor of success like never before. The safety of private and public vehicles is a major concern so GPS vehicle tracking system ensures their safety while travelling. Tracking systems are widely used to keep an eye on the moving objects.

In this system details about accident of automobile emergency alert situation. In this we are trying to program a GPS / GSM module incorporating an accelerometer to report occurrences of accident automatically via the GSM communication platform (using SMS messaging) to the nearest agencies such as hospitals, police stations, Toll plaza and so on, giving the exact position of the point where the crash had occurred. In our system we are also going to used Light Emitting Diodes (LED's), Alarm/Buzzer device to find the Accidental vehicle of any location. This can provide early response and rescue of accident victims, saving properties and lives.

II. RESEARCHBACKGROUND

Cloud Computing

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet.

The practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.

000webhost

If you want **completely free** web hosting, you usually have to live with ads on your site.

With 000webhost, though, you can get a site which **doesn't cost you anything and won't have any ads** added by the host.

There are limits to what you get, of course, but it's a viable way to create a site for an individual, club, or small business. You can **even place your own ads** on your site.

Pros

- Free hosting services come with rich feature set.
- Manage your account easily with the intuitive cPanel control panel.
- Even entry-level plans support PHP and MySQL.

Cons:

- No email accounts with the free plan.
- Limited tech support.

III. LITERATURE SURVEY

Current System:

The goal of this literature is to review the past work of vehicle tracking, monitoring. Vehicle tracking, monitoring and alerting system is challenging problem. There are various challenges encounter in vehicle tracking, monitoring and alerting due to deficiency in proper real time vehicle location and problem of alerting system. Global Positioning System(GPS) is most widely used technology for vehicle tracking and keep regular monitoring of vehicle. The objective of tracking system is to manage and control the transport using GPS Trans receiver to know the current location of vehicle. Transport is one of the important infrastructures of any country. The main problem about the transportation is the uncertainty of waiting time due to traffic jams and any other issue live abnormal conditioning. The safety of private and public vehicles is a major concern so GPS vehicle tracking system ensures their safety while travelling. In the existing system, different tracking techniques are used such as integration with Google maps, Automatic transit directions or real time tracking and arrival time prediction.

Limitations:

- RFID reader not in machine
- Accident detection is not provided.
- Thumb system
- No data transfer machine to cloud
- No tracking system
- Case Study of OLA Cab

Introduction-

Ola is India's largest mobility platform and one of the world's largest ride-hailing companies, serving 250+ cities across India, Australia, New Zealand, and the UK. The Ola app offers mobility solutions by connecting customers to drivers and a wide range of vehicles across bikes, auto-rickshaws, metered taxis, and cabs, enabling convenience and transparency for hundreds of millions of consumers and over 1.5 million driver-partners. Ola was founded in Dec 2010 by Bhavish Aggarwal and Ankit Bhati with a mission to build mobility for a billion people.

Working-

Ola uses the services of drivers with valid permits. Drivers can sign up to drive for OLA or they can also choose to work for an operator who owns multiple cars. The passenger's request will be received by the driver through his/her Mob App. The driver can accept or deny it based on his/her availability.

Advantages

- Vehicle tracing is done 24 by 7.
- It predicts time from source to destination.
- Continues GPS tracking vehicle.
- Keep the information about rides.
- Centralized database is available.

Disadvantages

- It will not consider the speed of vehicle whether it crosses the speed limits.

Accident detection is not provided.

- It will not detect vehicle in particular untraceable areas.
- Sometimes device does not work properly and we normally have to waste our time.

IV. PROPOSE SYSTEM DESIGN

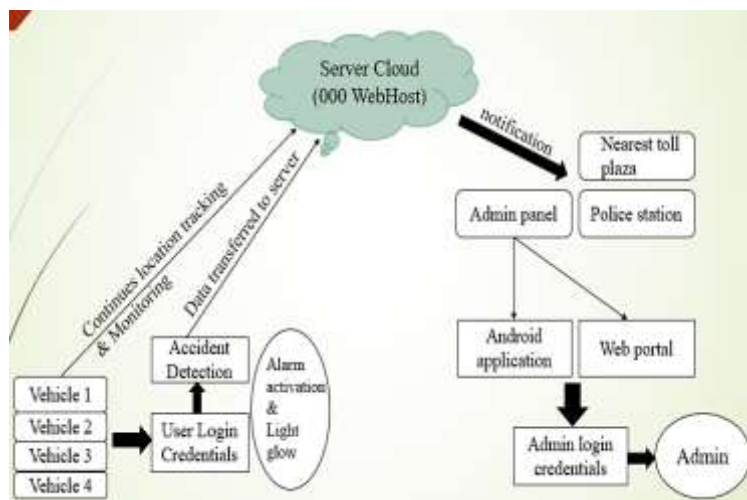


Figure: System Architecture

One of the method that cause in providing better transportation service is Vehicle Tracking, Monitoring Alerting System. By determining controlling current location. The vehicle tracking system use the GPS module to get geographic coordinate at regular time intervals Global System for Mobile Communication(GSM) module to transmit update location to a database through a Web portal .A Smartphones Application has also developed for continuously monitoring the vehicle location. In our system we are going to used Light Emitting Diodes (LED's) Alarm/Buzzer device to find the Accidental vehicle of any location. If any accident is detected the Alert system will send alert messages to Admin, nearest toll plaza police station.

Feasibility Study

An area of the preliminary study is to review cost factor and benefits of a course of action which supports operational, economical, and real time factors. The aim of the study is to figure out sensors works according to needs.

Technical Feasibility:

The system being developed is economic. It's cost effective within the sense that it's disregarded the registered work completely. In this system software control done through Android app & windows operating system hence it is user friendly. There is no need of special training to be provided to the operator, system includes simple IOT circuit and sensor which is easy to understand.

Economic feasibility:

The technical necessity for the system is system cost is low therefore it is economically feasible. The technical necessity for the system is economic and it is doesn't use the other additional software and hardware. Hence this system may be Economical Feasible at a great extend.

Behavioral Feasibility:

The system works on real time basis and by adapting a simple approach of monitoring and establishing communication over the network. User does not require special exercise for operating the system.

Feasibility Assessment:

The area of the system is simply based on the quality factors of IOT sensors and working of tracking system. Which will analyses costs and benefits of a development of operational, technical, economical support. The aim of the study is to figure out sensors works according to need.

Algorithm:

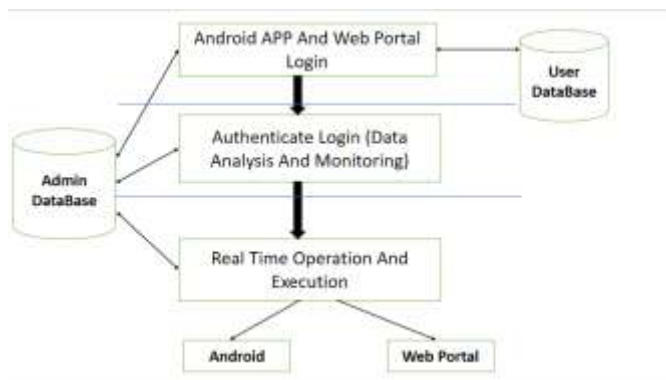
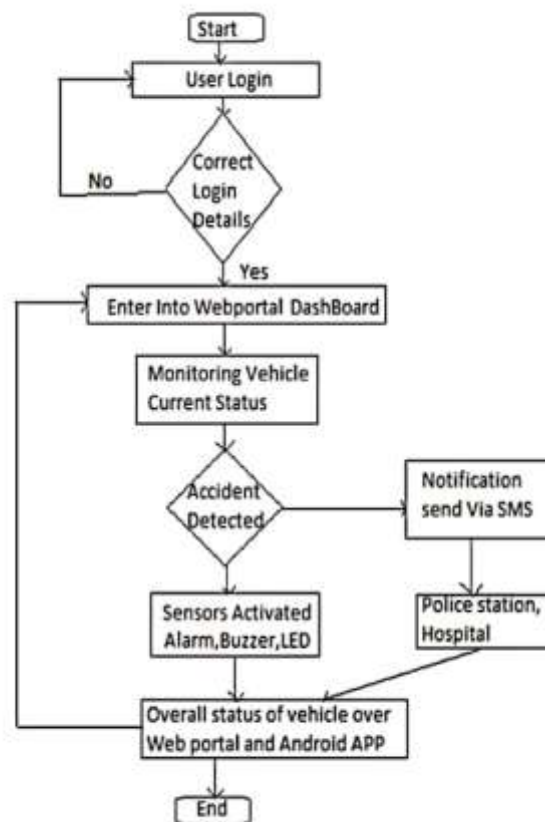


Figure. Three Layer Security System Flow

Flowchart:



ADVANTAGES:

- The system used for transport vehicles which are heavily loaded and the whole data is transferred and saved on cloud.
- This device provide the easiest way to analysis and monitor the data.
- It will give accurate result to the admin and user.
- This system contains less amount of sensors so it is a user friendly.
- There is no need to pass through different processes for different kind of operations.

Limitation:

- Wi-Fi / Internet connection should be always Available.
- User should always carry a mobile device to provide or access the data

Application:

- It is applicable for all kind of transportation system.

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CONCLUSION

This vehicle accident detection and alert systems provide emergency responders with crucial information at the earliest possible time. Reducing the time between when an accident takes place and when it is detected can reduce mortality rates. Conventional in-vehicle accident detection and notification systems, such as On Star, are effective in reducing the time gap before first responders are sent to the scene. These systems, however, are expensive and not available in all vehicles.

To further increase the usage of automatic accident detection and notification systems, this system can be used to indirectly detect accidents through sensors, such as accelerometer. In future we can interface different sensors with this paper, such as alcohol detector, drowsiness detector, heart rate detector, etc. In terms of these we can really prevent accident and save life. Security sensors to identify theft can also be added. It can be reprogrammed to switch off vehicle and track the vehicle in theft.

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