Smart Integrated Multiple Tracking System Development for IOT Based Target-Oriented Logistics Vehicles Location and Resource Service

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Abstract - Now a days, it becomes very difficult to track & safe guard a particular vehicle. There is no system to identify the location and intimation regarding theft. In this paper the action is taken only after the vehicle is stolen. The main objective of this project is to send an auto generated SMS to the owner of the vehicle about any unauthorized entry. An advantage of this project is that the if person manhandles the key section, it will deactivate the ignition of the vehicle. In this project we use the facility of GSM and GPS network combined together along with few sensors to overcome this issue. In this project we design a novel social application system, Anti-Theft for car, which can effectively utilize in Daily routine life to offer a smart way of extracting the critical information. This project also use to develop vehicle accident prevention by method of alcohol detector in an effort to reduce traffic accident cases based on driving under the influence alcohol.

I.   INTRODUCTION

Currently, developed countries and companies are paying attention to the IoT (Internet of Things) era. With the expansion of the service market through integration with various industries IoT market is rapidly growing and there are many researches being done about tracking systems using IoT technology. Tracking system observes location information about object or human movement and supply and it is widely used in many fields such as logistics industry, electronic commerce, and military purposes. Recently due to the development of tracking system and IoT technology ubiquitous approach of human life around human life is being actively conducted and is applying level of IT technology that can continuously check and manage field status in all social environments and industrial fields [1]. Tracking

systems can be used expanded to the purposes such as automation system establishment in distribution/logistics field, cost savings through establishment of efficient task process, resource management for profit maximization, personnel management, and task management. The representative technologies for this are GPS , Sensor, LAN, Wireless-Network, and Wi-Fi Among the many technologies used in tracking system the representative technologies are GPS and GSM. GPS (Global Positioning System) which is a positioning system receives wireless signals from satellites to measure location and there is no need to establish additional infrastructure for wide area location measurement so there are many advantages in the physical/temporal sense. Also in addition to development of wireless Internet Technology and rapid development of mobile terminal device technology, Location Based Services, LBS is largely increasing. Accordingly, location recognition technology has become an essential factor in providing these services, and through integrating tracking system there is need for this type of location measurement technology in many applications such as prevention of lost children and freight tracking [4, 5]. Therefore the study uses GPS, RFID, LAN, Wireless-network, and Wi-Fi technology to establish a Real-Time Tracking System based on RLBS (Real-Time Location Based Service) and suggests Smart integrated multiple tracking system. Based on the suggestion the study suggests a smart integrated multi tracking system that can manage and supervise on the field and remotely through daily task scheduling and check sheets at the Distribution / Logistics / Construction field, which can increase task efficiency through material supply in discharge management, and which can strengthen competitiveness.

II   LITERATURE REVIEW

The system that has three modules; automatic speed control module, accident detection and information sending module and security enabling module. Automatic speed control module includes RF transmitter placed in specific location and RF receiver in the vehicle. Accident detection module includes GSM and GPS technology. Security enabling module includes sensory units which ensures the condition of seat belt and the driver. In case of any accident, the vibration in vibration sensor increases beyond the limit and information is sent to GSM module. The GSM module then send message to respective authority reporting the accident occurrence [1]

Development and deployment of GPS (Global Positioning System)/GSM (Global System for Mobile communications) based Vehicle tracking and alert system. This system allows inter-city transport

companies to track their vehicles in real time and provides security from armed robbery and accident occurrence [2].

Real time tracking system that provides accurate localizations of tracked vehicle with low cost. GM862 cellular quad band module is used for implementation. The monitoring server and a graphical user interface on a website is also developed using Microsoft SQL Server 2003 and ASP. Net to view proper location of a vehicle on a specific map. The paper also provides information regarding the vehicle status such as speed, mileage.

Nowadays road accidents are a major problem all over the world. The recent report says [9] that in an annual average of 700,000 road accidents, about 10% of them occur in India which has overtaking China. The latest annual statistics revealed by the World Health Organization (WHO) in its first Global status report on road safety, 80,000 people are killed on Indian roads due to speeding, drunk driving, hit and run cases, less usage of helmets, seat belts and reckless driving of vehicles.

According to the latest data compiled by the National Crime Records Bureau (NCRB) [4] drunk driving was responsible for only 7,061 meter of 1.5% of the 4,64,674 road accidents in India in the year 2015.

In Delhi, the national capital, it was found that the share of drunken driving accidents in all the accidents was 1.4%, which is just below the national average [4]. The total number of road accidents increased by 2.5% from 4,89,400 in 2014 to 5,01,423 in the year 2015. The total number of persons killed in road accidents increased by 4.6% in 2015-16.

The road accident injuries have also increased by 1.4% in the year 2015-16. The severity of road accidents measured in terms of number of people killed per 100 accidents, has increased from 28.5 in 2014 to 29.5 in 2015. Delhi also saw 9,714 vehicle thefts in the first quarter of 2016 up from 6,724 in the first three months of last year. 44% of vehicle theft had been detected the national capital from last year [1].

III   PROBLEMS TO BE ADDRESSED

As seen in the Literature survey, the proposed systems do not provide full-proof security for the vehicle. There is no system to identify the location and intimation regarding an theft. this project we design a novel social application system, Anti -Theft for car, which can effectively utilize in Daily routine

life to offer a smart way of extracting the critical information. Thus, these are GPS and GSM based vehicle theft control system projects by implementing these vehicle security system projects, a vehicle can be protected from thefts. Here action is taken only after the vehicle is stolen.
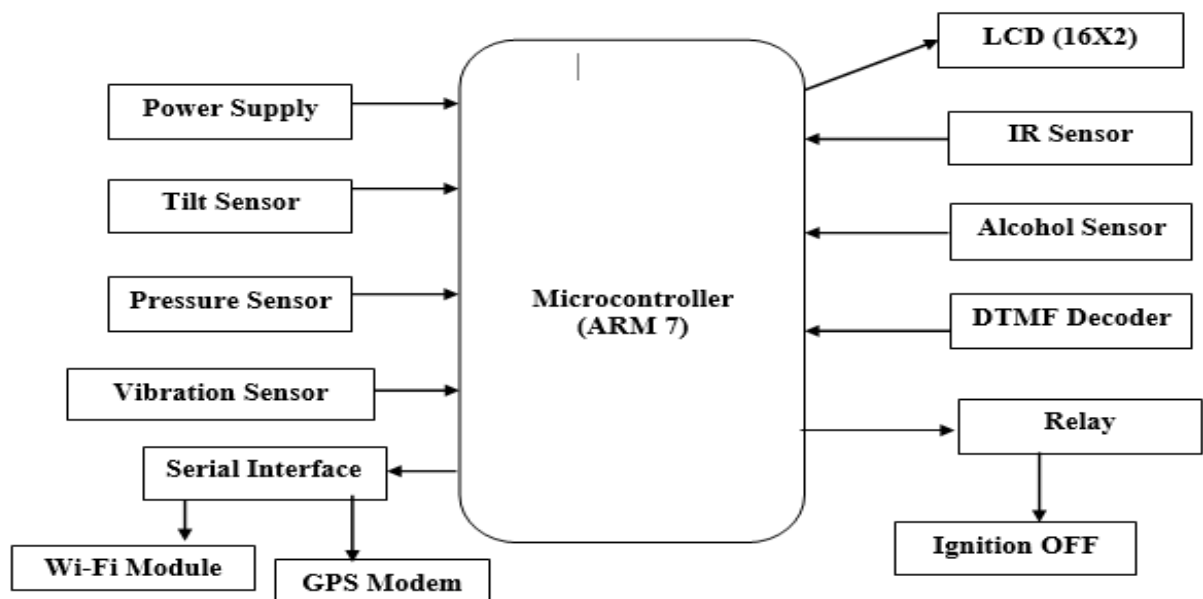
IV   PROPOSED WORK

Fig 1. Block Diagram of the proposed system

OBJECTIVES: This project contains Door control using RFID reader and RFID tags, and also contains security which is provided to stop the ignition of vehicle. Message conveying ability to owner for unauthorized access with correct vehicle location using GPS and GSM which uses serial communication.

1. Classifying between Major & Minor Accident.

2. Alcohol Sensor Detection and Action via ignition off.

3. Communication between Two device using IOT

4. Ignition off via Mobile when its theft.

We focus on 'Prevention is better can cure'.

The system starts with the usage of RFID tags for authentication. The user is authenticated if and only if a valid RFID tag is used which is given to the owner of the vehicle. The ignition engine of the vehicle is controlled with the help of DTMF technology; also we can activate the sensors using this technology. The IR sensor is used to detect the obstacles and send a signal to the controller, which sends a message to the user in case of any manhandling of the vehicle. The alcohol sensor will detect the alcohol depending on the human breath, and sends a signal to the controller, which in turn stops the ignition of the vehicle. Pressure transducers have a sensing element of constant area and respond to force applied to this area by fluid pressure. This allows the pressure to be monitored by the microcontroller. A threshold is set to detect the major and minor accidents of the vehicle. If the pressure applied is less than the threshold, then it is a minor accident. If the value exceeds the threshold, it is a major accident. The family is informed about the accident and the state of the vehicle owner by a notification on the app. A tilt sensor measures the tilting position with reference to gravity. As soon as a change in the angle occurs, warning signal is sent to the owner of the vehicle.

V   FUTURE SCOPE

In order to obtain the higher performance of the system, some suggestions are included here as a guide and plan for further developing the system. To apply this project into the car need to use own external wiring without disturbing the wiring that is already fixed in the car. So, maybe it can give extra work and more expenses to the customer because of extra wiring. So, it needs more research on how to apply this project direct to the wiring that is already in the car. In addition, one of limitations of RFID with UHF band is that the RF cannot propagate through water and metal materials. The solution of this limitation is using the RF in MF band (13.56MHz) that is better than the UHF in travelling through such mentioned media.

VI   CONCLUSION

The auto-guard system combines the advantages of RFID and GSM together. The key of the automobile is an RFID card which is contactless, secure and convenient to use. The long-range monitor and grading responses could be realized by the mobile phones of the users, which made the alarm cover a broad range. The microcontroller enhances the reliability and the capability of anti-interference. These advantages mentioned above meet the requirements of auto-guard system so that a better effect was made.

The proposed model for accident detection system can prove to be an important aid in constructing smart transport systems in the near future if implemented properly. Also, the system can be used by owners of the transport companies in order to monitor the speed of the vehicle, track its real time location by using an android app. These features can also help in case of vehicle theft.

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