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A RESEARCH ON INTELLIGENT TWO WHEELER AUTHENTICATION SYSTEM

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ABSTRACT

Introducing a system in Two Wheeler to provide security and sending vehicle information to the owner. This feature would help the owner for decision making and tracking of vehicle in case of theft and saving valuable life, time and money. The concept of the project is to provide vehicle related information to the owner so that appropriate decisions can be taken by owner for saving valuable time and money. The system is capable for providing some information related to vehicle. That they are fuel level and mileage information, service reset time and battery related information. Belong with the vehicle tracking using GPS we simultaneously measure and send the above notifications by the use GSM and PIC microcontroller.

Keywords:

I. INTRODUCTION

Vehicle tracking system is a miniature model of Global Positioning System (GPS). GPS is used to find out the position or location of the vehicle around the world. This implementation introduces an Android based tracking and theft prevention system.GPS will be fixed in the vehicle to monitor current position of the vehicle. With the help of the GPS value, we can calculate the distance with respect to time. The direction and the distance are fed into the microcontroller and that will be transmitted to GSM through digital modulation techniques. At the receiver end the signal will be detected and demodulated with digital demodulation technique.

Then the signal will be given to Android mobile. The GPS, GSM is interface with microcontroller to track and give the message to the owner of the two wheeler. This android application is specifically designed for this implementation.

The software for the microcontroller interfacing with GSM, GPS is written in Embedded C, that code run through the AVR studio. The main advantage of the application is that security will increase in the two wheelers and theft will directly be prevented by the consumer using low cost technology. Behind this tracking we are introducing some of the additional features that mentioned above as the proposed scheme.

Vehicle security system has been a topic of great interest over the years due to the increasing vehicle theft cases reported all over the world. Most of the advanced vehicle security systems best suit the four wheelers. As of the security system for two wheelers is concerned, the systems available in market are of no match to the well equipped thieves. When under attack, these systems can only immobilize the engine and sound a loud alarm.

It is a serious limitation. In this paper we propose a reliable and robust design of Two Wheeler Vehicle Security System (TWVSS) with features enhancing the security of the vehicle and ensuring the safety of the rider. In our proposed security system various new features are included in addition to the engine immobilizer and alarm. Few of the important features supported by our system are alerting owner by SMS about the theft attempt, allowing user to control the system remotely by SMS, tracking the location of vehicle using GPS technology, Remote Keyless System.

II. LITERATURE AND REVIEW

According to the report published by National Crime Records Bureau (NCRB), in the year 2011 alone 122,367 two wheeler vehicles were stolen in India. Out of which only 32,826 vehicles were recovered [1]. Typically, two-wheelers are stolen right off streets or apartment parking lots. By the time the police are alerted (which could be a few hours since the theft), the vehicles are made underground leaving almost no traces. Later the vehicles are either dismantled or sold in neighboring states/districts at throw-away prices, leaving the owner and police helpless in bringing the thief to book. The story remains same for rest of the world. The only possible way out of this problem is implementation of security system in the vehicle.

The security system should be capable of performing reasonably well even in unfavorable conditions to meet the desired level of security [2], [3]. The price of the security system should be reasonably low or else the automobile manufacturers cannot implement such a system, as it will increase the overall cost of the vehicle by a big margin. If the design of the security system is such that it is compatible with most of the brands and classes of vehicles then it helps reducing the NRE cost. The overall power consumption should be less as the source of supply for the security system is the 12V battery of the vehicle. Keeping these requirements and constraints in mind we propose this new design of Two Wheeler Vehicle Security System (TWVSS) [4-12].

III. PROPOSED TECHNOLOGY

Proposed system involves the vehicle related information notification to the owner in order to saving valuable time and money.

BLOCK DIAGRAM

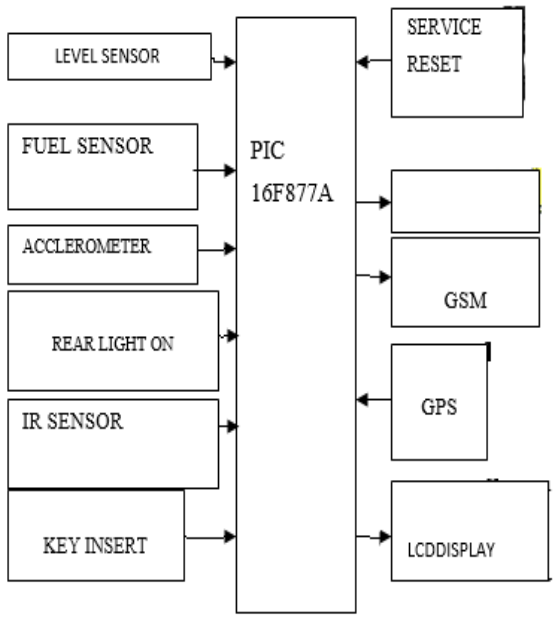

Figure 1: Block Diagram

Module 1 – Detects the motion of the vehicle. (Even the slightest motion)

Module 2 – Detect the insertion of the key to the Key hole.

Communication between **Module 1** and **Module 2** is through **wired communication**. The key insertion status is recorded by Module 2, which is further passed to Module 1.Module 2 now starts running which would monitor the accelerometer and detect the slightest movement of the vehicle. If the key is inserted, and the accelerometer doesn't sense any movement for 5-10 sec, information is passed to the driver through GSM or Horn which can be customized.

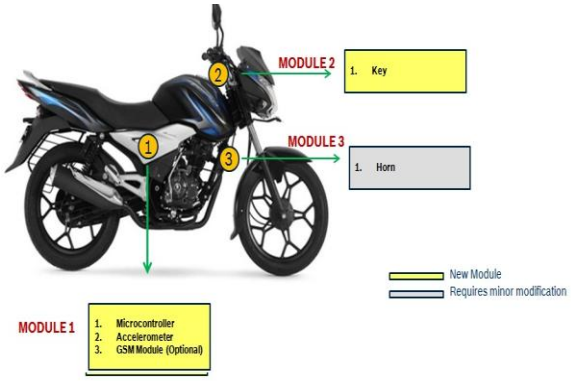

Figure 2: Operational Principle

IV. RESULT AND ANALYSIS

We have successfully implemented our system that showed effective results. We tested our system a number of times and then we deployed it in real time to check a vehicles record. The tracking system was installed inside a car and the car travelled 3 cities. The tracking system was continuously asked for the statuses at intervals and it responded every time successfully. For the purpose of analysis, we visited a number of tracking companies and compared our features with theirs [13-22].

Our system beats the already developed tracking systems on the basis of overall cost, control, services, portability, reliability, authentication and 24/7 facilities. Consequently, our system design turns out to be the most efficient, robust and powerful tracking system design with a number of features to offer along with the already mentioned [23-26].

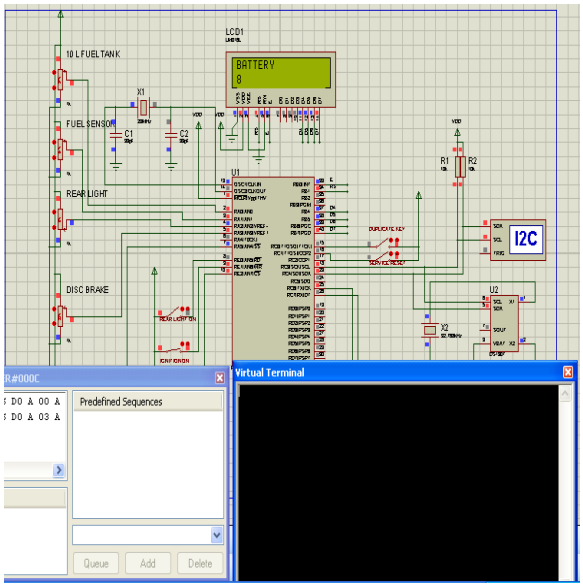

Figure 3: Simulated Output

V. CONCLUSION

In this paper the software coding is developed for tracking and theft prevention system in EmbeddedC programming language and was executed through the AVR studio. The GSM Modem transmits the data between two different terminals in serial. Also the satellites currently tracked by the GPS receiver are shown in Hyper-Terminal. This paper presents a GPS and GSM based vehicle tracking system that provides the owner of a mobile asset with full security and track of the asset. The system allows users to track the position, speed, water level, engine level and different parameters. The owner of the vehicle just has to send an SMS and the tracking system installed inside the vehicle will respond within a minute. The system is equipped with a backup battery in case of a smart thief. Our proposed system design works continuously and offers services 24/7. We have also developed a web portal for the users to track their vehicle on internet, and an android application for smart phone users, with which they can easily track their vehicles on Google Maps without the need of internet. The results show that our system outperforms the traditional existing tracking systems in terms of cost, services, reliability and control.

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