Android Based Remote Vehicle Dis-Engaging System

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Abstract: *Vehicle Security has become one of the major problems for owners. The aim to trace the vehicles and stop the vehicle in any remote place without supplying the power to that system by remote currently almost of the public having an own vehicle, theft is happening on parking and sometimes driving insecurity places. The safe of vehicles is extremely essential for public vehicles. Vehicle tracking and locking system installed in the vehicle, to track the place and locking engine motor. The place of the vehicle identified using Global Positioning System (GPS) and Global system mobile communication (GSM). These systems constantly watch a moving Vehicle and report the status on demand. When the theft identified, the responsible person send SMS to the microcontroller, then microcontroller issue the control signals to stop the engine motor. Authorized person need to send the password to controller to restart the vehicle.*

Keywords: Microcontroller (ATMEGA 32), PL2303 for usb to ttl translator, Global Positioning system (GPS), 100 amps relay, Global system mobile communication (GSM), Android (ECLIPSE, JUNO, GALIILEO)

1. Introduction

Today, the need of life for many people in the world is importance of data in human life. It has become an inevitable part of day to day life, not only in technical field but also in non technical fields. This project consists of a android based remote vehicle disengaging system will provide effective, real time vehicle location, mapping and reporting this information value and add by improving the level of service provided. A vehicle tracking system will inform where your vehicle is and where it has been, how long it has been. The system uses geographic position and time information from the Global Positioning Satellites. The system has an "On-Board Module" which resides in the vehicle to be tracked and a "Base Station" that monitors data from the various vehicles.

Despite the various technologies that have been introduced in recent years to detect car thefts and tracking it, It was reported that as many as cars were stolen yearly in the world. According to NCIC, in 2006, 1,192,809 motor vehicles were reported stolen, the losses were 7.9$ billion. Several security and tracking systems are designed to assist corporations with large number of vehicles and several usage purposes. A fleet management system can minimize the cost and effort of employees to finish road assignments within a minimal time. Besides, assignments can be scheduled in advanced based on current vehicles location. Therefore, central fleet management is essential to large enterprises to meet the varying requirements of customers and to improve the productivity. However, there are still some security gaps where these technologies don't prevent a vehicle from theft, don't assist to recover it and don't allow the users to know the status of their vehicles. They can't permit the owner to communicate with the vehicle online, even if the owner is certain that his vehicle was stolen. The proposed security system in this paper is designed to track and monitor vehicles that are used by certain party for particular purposes, also to stop the vehicle if stolen and to track it online for retrieval, this system is an integration of several modern embedded and communication technologies. To provide location and time information anywhere on Earth, the GPS is commonly used as a space-based global navigation satellite system. The location information provided by GPS systems can be visualized using Google Earth Maps. In wireless data transporting, GSM and SMS technology is a common feature with all mobile network service providers. Utilization of SMS technology has become popular because it is an inexpensive, convenient and accessible way of transferring and receiving data with high reliability.

2. Literature Review

Vehicle security is always been an important priority in the automobile industry. Various techniques like central locking system with alarm were one of the security parameter, which could only protect against thefts only when the vehicle was stationery. However, to keep in touch with a remote vehicle and track its other aspects like speed and location are being developed and tested .Today's generation phones are not only capable of sending mails, making phone or video calls but also have the capability to control other smart phones. In this project we introduce a new efficient technique to disengage a remote vehicle using android technology.

3. Methodology

A vehicle tracking system combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose designed computer software at least at one operational base to enable the owner or a third party to track the vehicle's location, collecting data in the process from the field and deliver it to the base of operation. Modern vehicle tracking systems commonly use GPS or GLONASS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software Vehicle tracking systems are also popular in consumer vehicles as a theft prevention and retrieval device. Police can simply follow the signal emitted by the tracking system and locate the stolen vehicle.

When used as a security system, a Vehicle Tracking System may serve as either an addition to or replacement for a traditional Car+ alarm. Some vehicle tracking systems make it possible to control vehicle remotely, including block doors or engine in case of emergency. The existence of vehicle tracking device then can be used to reduce the insurance cost.
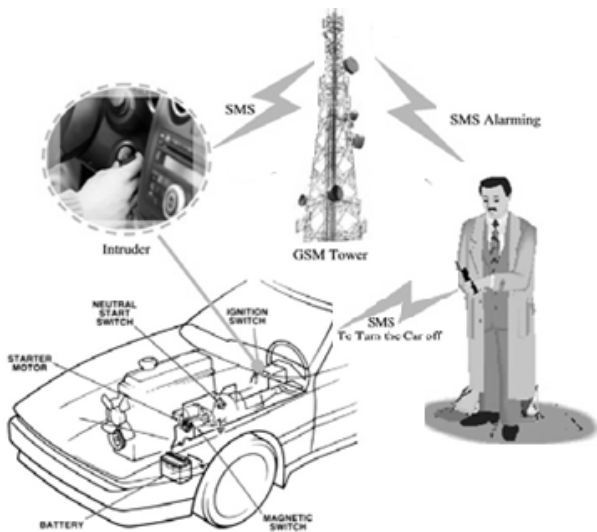
3.1 GPS Technology

The Global Positioning System (GPS) is a satellite based navigation system consists of a network of 24 satellites located into orbit. The system provides essential information to military, civil and commercial users around the world and which is freely accessible to anyone with a GPS receiver. GPS works in any weather circumstances at anywhere in the world. Normally no subscription fees or system charges to utilize GPS. A GPS receiver must be locked on to the signal of at least three satellites to estimate 2D position (latitude and longitude) and track movement. With four or more satellites in sight, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the vehicle position has been determined, the GPS unit can determine other information like, speed, distance to destination, time and other. GPS receiver is used for this research work to detect the vehicle location and provide information to responsible person through GSM technology.

3.2GSM Overview

Global System for Mobile Communications or GSM (originally from Group Special Mobile), is the world's most popular standard for mobile telephone systems. The GSM Association estimates that 80% of the global mobile market uses the standard. GSM is used by over 1.5 billion people across more than 212 countries and territories. This ubiquity means that subscribers can use their phones throughout the world, enabled by international roaming arrangements between mobile network operators. GSM differs from its predecessor technologies in that both signalling and speech channels are digital, and thus GSM is considered a second generation (2G) mobile phone system. The GSM standard has been an advantage to both consumers, who may benefit from the ability to roam and switch carriers without replacing phones, and also to network operators, who can choose equipment from many GSM equipment vendors.
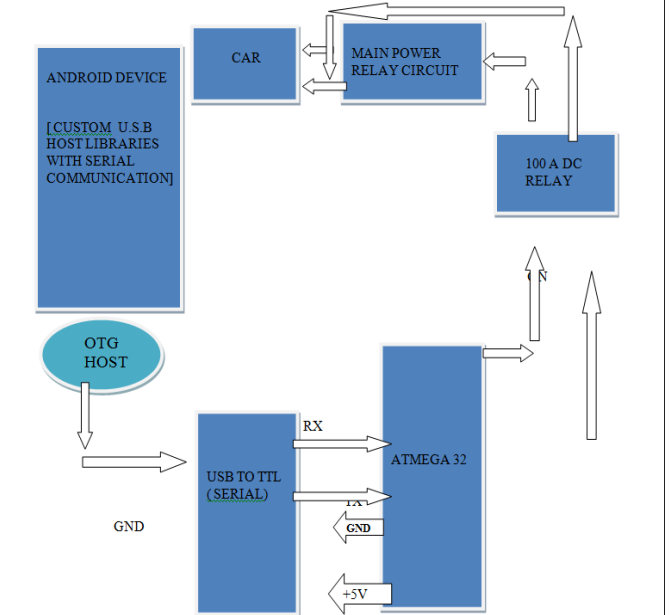
3.3 System Design

Figure 1: General Block Diagram
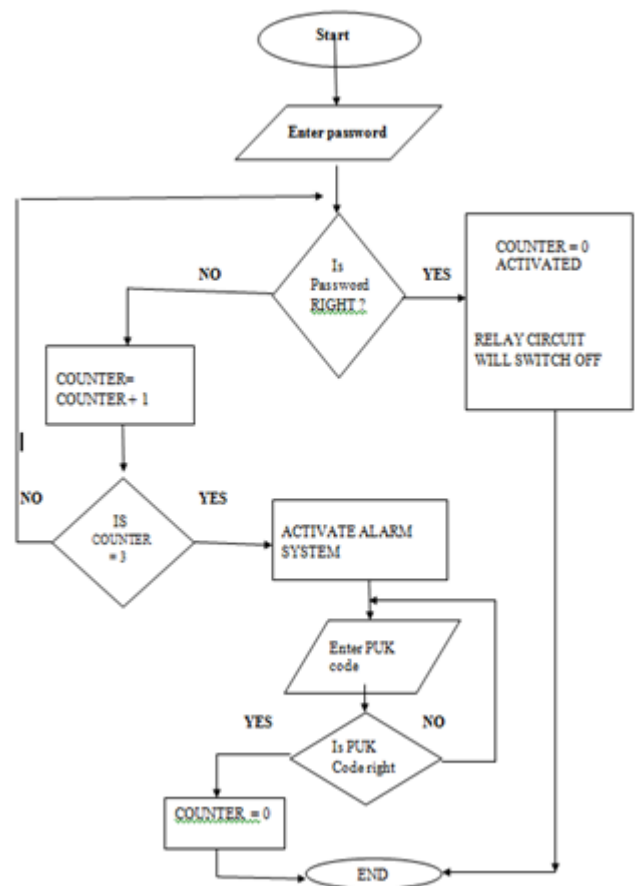
4. Algorithm

Figure 2: Algorithm

5. Android Platform Explanation

Android is an operating system based on the Linux kernel. The project responsible for developing the Android system is called the Android Open Source Project (AOSP) and is primarily lead by Google. The Android system supports background processing, provides a rich user interface library,

supports 2-D and 3-D graphics using the OpenGL-ES (short OpenGL) standard and grants access to the file system as well as an embedded SQLite database. An Android application typically consists of different visual and non visual components and can reuse components of other applications.

6. Applications and Advantages

6.1 Applications

1. Stolen vehicle recovery.
2. Field sevice management.
3. It is used for food delivery and car rental companies.

6.2 Advantages

1. It provides more security than other system.
2. From the remote place we can access the system.

7. Conclusion

Vehicle tracking system is becoming increasingly important in large cities and it is more secured than other systems. Now a day's vehicle thefting is rapidly increasing, with this we can have a good control in it. The vehicle can be turned off by only with a simple SMS. Since, now days the cost of the vehicles is increasing they will not step back to afford it. This setup can be made more interactive by adding a display to show some basic information about the vehicle and also add emergency numbers which can be used in case of emergency. Upgrading this setup is very easy which makes it open to future requirements without the need of rebuilding everything from scratch, which also makes it more efficient.

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