An Automotive Security System For Anti-Theft

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Abstract- *Automotive theft has been a persisting problem all around the world and there seems no curb on these activities. In this paper, we present Anti-theft security system for automobiles that reduces the increasing theft problems and helps to stop the vehicle from being stolen. The main aim of this proposed system is to protect the vehicle from unauthorized objects. According to the report published by National Crime Record Bureau (NCRB), in a year alone 122,367 two wheeler vehicles were stolen in India. Out of which only 32.826 vehicles were recovered [1]. Vehicles are stolen from places like streets, apartments and parking lots. Later these vehicles are dismantled and sold at throw-away prices for money, leaving the vehicle owner and police helpless. This system helps the vehicle owner to locate his vehicle and also protects it from being stolen.*

I. INTRODUCTION

This paper provides security and avoids the vehicle from being stolen. This project consists of GPS, GSM services to send messages to the owner about his vehicle and also consists of other different component that protects the vehicle from being stolen. This system also ultimately helps the owner to keep track of his vehicle and also provides tracing of his vehicle when needed. This security system makes use microcontroller ATmega328. It uses Accelerometer sensor to detect and monitor motion of the vehicle that is being stolen. GSM technology used in this system intimates about an unauthorized entry to the owner of the vehicle. It sends an SMS to the owner, and the advantage of this system is that the owner can send back the SMS with necessary instruction in order to stop the vehicle instantly so that the vehicle can be protected. After receiving SMS message from the owner of the vehicle the system will automatically stops the ignition unit hence the vehicle will not function any more. Another feature of this system is enhanced by integrating a GPS system, which gives the vehicle owner which sends the exact location of the vehicle in terms of its latitude and Longitude value, on his smart phone. Level sensor is used which will identify any level changes in the petrol tank and will inform the owner on his smart phone. In case of vehicle theft taking place the owner will thus know the vehicles current location and based on that owner can stop the vehicle at that moment by sending a predefined SMS message to this system to stop its functioning.

II. PROBLEM STATEMENT

Automotive theft has been a persisting problem around the world. In a situation, there is a need of better security system. It is need to have a system which monitors and communicates to the device owner. Smart phone is used for real time tracking and to intimate the owner

III. OBJECTIVE OF PROJECT

In this project, we present Anti-theft security system for automobiles that reduces the increasing theft problems and helps to stop the vehicle from being stolen.

IV. SYSTEM ARCHITECTURE

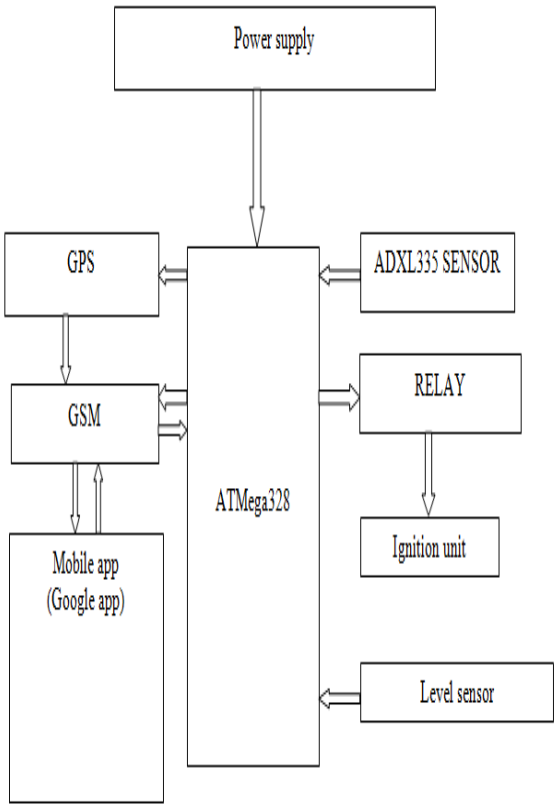


Figure 1. An automotive security system for two wheeler

V. WORKING

5.1 In this figure refers Power supply we need a 5V DC supply as the operating voltage for the microcontroller unit, GSM modem and GPS module. A 230V AC voltage from a transformer is converted into 12V DC voltage using a power regulator. A 7805 IC is used as a voltage regulator which gives 5V DC from 12V DC voltage.

5.2 ATmega328 Microcontroller: In this project we are going to use atmega328 microcontroller. The AVR core combines a rich instruction set with 32 general purpose working registers. All the 32 registers are directly connected to the Arithmetic Logic Unit (ALU), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC microcontrollers

5.3 GPS:The **Global Positioning System** (**GPS**), originally **Navistar GPS**, is a space-based radio navigation system owned by the United States government and operated by the United States Air Force. It is a global navigation satellite system that provides relocation and time information to a GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The GPS system does not require the user to transmit any data, and it operates independently of any telephonic or internet reception, though these technologies can enhance the usefulness of the GPS positioning information. The GPS system provides critical positioning capabilities to military, civil, and commercial users around the world.

5.4 GSM:**GSM** (**Global System for Mobile Communications**, originally ***Group especial Mobile***) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation digital cellular networks used by mobile devices such as tablets, first deployed in Finland in December 1991. As of 2014, it has become the global standard for mobile communications – with over 90% market share, operating in over 219 countries and territories. 2G networks developed as a replacement for first generation (1G) analog cellular networks, and the GSM standard originally described as a digital, circuit-switched network optimized for full duplex voice telephony. This expanded over time to include data communications, first by circuit-switched transport, then by packet data transport via GPRS (General Packet Radio Services) and EDGE (Enhanced Data rates for GSM Evolution, or EGPRS).

5.4 LEVEL SENSOR:

Figure 2. Level sensor

A **level sensor** is a device for determining the **level** or amount of fluids, liquids or other substances that flow in an open or closed system. There are two types of **level** measurements, namely, continuous and point **level** measurements. The level sensors are usually connected to an output unit for transmitting the results to a monitoring system. Current technologies employ wireless transmission of data to the monitoring system, which is useful in elevated and dangerous locations that cannot be easily accessed by common workers.

5.5 RELAY: the contacts were open. When the current to the coil is switched off, the armature is returned by a force, approximately half as strong as the magnetic force, to its relaxed position. A **relay** is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid-state relays. Relays are used where it is necessary to control a circuit by a separate low-power signal, or where several circuits must be controlled by one signal. When an electric current is passed through the coil it generates a magnetic field that activates the armature and the consequent movement of the movable contact either makes or breaks (depending upon construction) a connection with a fixed contact. If the set of contacts was closed when the relay was de-energized, then the movement opens the contacts and breaks the connection, and vice versa if

VI. SOFTWARE CONFIGURATION

6.1 EAGLE

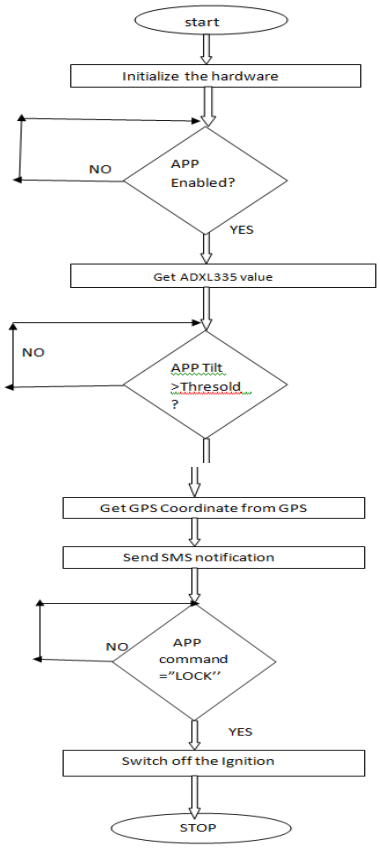
EAGLE contains a schematic editor, for designing circuit diagrams. Schematics are stored in files with .SCH extension, parts are defined in device libraries with .LBR

extension. Parts can be placed on many sheets and connected together through ports. EAGLE provides a multi-window graphical user interface and menu system for editing, project management and to customize the interface and design parameters. The system can be controlled via mouse, keyboard hotkeys or by entering specific commands at an embedded command line.

6.2 Arduino Compiler

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino and Genuino hardware to upload programs and communicate with them.

VII. FLOW CHART



VIII. RESULT

The main goal of this project is to provide security protection to automobiles. This project uses various technologies to intimate the owner of the vehicle about any unauthorized entry. It also uses level sensor to identify level changes in the petrol tank. If a car gets robbed it is difficult to keep track of it with this project we can keep track of the robbed car using GPS. This helps to get complete surveillance of the vehicle. GSM is used to send SMS to the owner, and the advantage of this project is that the owner can send back the SMS with the necessary instructions to stop the vehicle instantly.

IX. CONCLUSION

The main goal of this project is to provide security and monitor vehicle using various technologies like GPS,GSM technology and to intimate the owner of the vehicle about any unauthorized entry. This process is done by sending an SMS to the owner, and the advantage of this project is that the owner can send back the SMS with the necessary instructions to stop the vehicle instantly. The main goal of this project is to provide security protection and smart solution to automobiles.

X. ACKNOWLEDGMENT

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