ADVANCED VEHICLE SECURITY BIDIRECTIONAL CONTROL SYSTEM

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Abstract - *This Project introduces a programmed limitation framework utilizing GPS and GSM SMS administrations. The framework licenses confinement of the vehicles and transmitting the position to the proprietor on his cellular telephone as a short message (SMS) at his solicitation. This framework is likewise given crisis switch which can be squeezed when a man driving vehicle needs assistance. This switch assumes the liability to bolt the motor. The framework can be interconnected with the vehicle caution framework and alarm the proprietor on his cell telephone. This following framework is made out of a GPS beneficiary, Microcontroller and a GSM Modem.GPS Receiver gets the area data from satellites as scope and longitude. The Microcontroller forms this data and this handled data is sent to the client/proprietor utilizing GSM modem.*

Keywords: *Arduino UNO,GSM, RFID Tag Reader, Finger Print module, Solenoid Valve, Relay and LCD Display*

1. INTRODUCTION

These day's vehicle robbery cases are higher than any other time, it has gotten to be fundamental to give a vehicle a superb security with the main solid hostile to burglary gadget. Vehicle focal locking framework guarantees the best ensure to secure your vehicle from various types of burglary cases. It is a vehicle security gadget that offers fantastic insurance to your vehicle. However this framework couldn't demonstrate to give complete security and openness to the vehicle in the event of burglary. So a more created framework makes utilization of an inserted framework focused around GSM innovation. The outlined and created framework is introduced in the vehicle. Whether one is holder of single vehicle or in excess of 1000, Vehicle Tracking System (VTS) is an answer for spot, track and secure your portable resources. Today, vehicles have been an essential part of our daily life. Hence the security and maintenance of the vehicle is much necessary. As per as the security is concerned , most of the vehicles are now a day's running on the LPG so it is always needed to monitoring gas level as well as any kind of leakage into the vehicle. As per as maintenance is concern it is necessary to maintain the engine temperature of the vehicle, speed of the vehicle. So, the proposed system is designed to overcome such difficulties in order to provide fully automated maintenance system to make the journey of the passenger safe, comfortable and economical.

BASICS OF EMBEDDED SYSTEMS

Embedded Systems are designed for a specific task .Although they use computer techniques, they cannot be used as a general purpose computer using a variety of different programmes for different task. In this way their function can be focused onto what they need to do, and they can accordingly be made cheaper and more efficiently.

BASICS OF IOT

IoT (Internet of Things) is an advanced automation and analytics system which exploits networking, sensing, big data, and artificial intelligence technology to deliver complete systems for a product or service. These systems allow greater transparency, control, and performance when applied to any industry or system.

2. METHODOLOGY

In this proposed system However starts the vehicle the user must enter the finger print and then valid license card. The instrument is straightforward and minimal effort vehicle burglary control inserted framework. Data base if it's correct the vehicle will start otherwise can't possible. Suppose the theft trying to cut down the biometric system message send it to the owner and GPS also enable. With the GPS & GSM help we can able to identify our vehicle exact location. The RFID Tag and RFID Reader act as transmitter and receiver respectively. The antenna sends high frequency of electromagnetic waves. The RFID Reader reads the database of concern vehicles. Solenoid valve is controlled by owner if any other unknown

person tries to start that time message is received from car. In that situation owner can stop fluid. If vehicle can be started by any aspect owner stop by fluid control system.

3. HARDWARE COMPONENTS

ARDUINO UNO

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328p microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment),via a type B USB cable. It can be powered by the USB cable or by an external 9- volt battery, though it accepts voltages between 7 and 20 volts. It is similar to the Arduino Nano and Leonardo.

Fig: Arduino UNO

NODE MCU

Node MCU is a low-cost open source IOT platform. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added.

RFID

Radio-frequency identification (RFID) can be adjusted from 1–2,000 feet (0–600 m), allowing flexibility in applications such as asset protection and uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. Active tags have a local power source such as a battery and may operate at hundreds of meters from the RFID reader. Unlike a barcode, the tag need not be within the line of sight of the read0er, so it may be embedded in the tracked object. RFID is one method for Automatic Identification and Data Capture (AIDC).
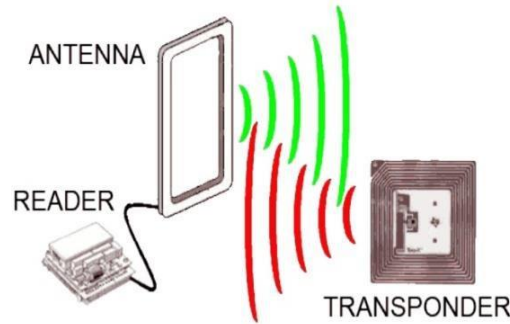
supervision.

GSM

Fig: RFID readers

TAGS

RFID tags can be either passive, active or GSM is an open and digital cellular technology used for transmitting mobile voice and data services operate at the 850MHz, 900MHz, 1800MHz, and battery-assisted passive. An active tag has an on-board battery and periodically transmits its ID signal. A battery assisted passive (BAP) has a small battery on board and is activated when in the presence of an RFID reader. A passive tag is cheaper and smaller because it has no battery; instead, the tag uses the radio energy transmitted by the reader. However, to operate a passive tag, it must be illuminated with a power level roughly a thousand times stronger than for signal transmission. That makes a difference in interference and in exposure to radiation.

READERS

RFID systems can be classified by the type of tag and reader. A Passive Reader Active Tag (PRAT) system has a passive reader which only receives radio signals from active tags (battery operated, transmit only). The reception range of a PRAT system reader 1900MHz frequency bands. GSM technology was developed as a digital system using the time division multiple access (TDMA) technique for communication purposes. SIM800 is a quad-band GSM/GPRS module that works on frequencies 850MHz GSM, 900MHz EGSM, 1800MHz DCS, and 1900MHz PCS. It also features GPRS multi-slot class 12/class 10 (optional), and supports CS-1, CS-2, CS-3, and CS-4 GPRS coding schemes.

Fig: GSM module

LCD DISPLAY

LCD, expanded as Liquid Crystal Display, is a kind of electronic display module. It is extensively used in various applications to display any outcome as it is cost effective and it doesn't possess any limitations to display custom and special characters. Here it is used for intimating the finger print sensor content and Engine state.

Fig: LCD Display

SOLENOID VALVE

A solenoid valve is an electrically controlled valve. The valve features a solenoid, which is an electric coil with a movable ferromagnetic core (plunger) in its center. In the rest position, the plunger closes off a small orifice. An electric current through the coil creates a magnetic field. The magnetic field exerts an upwards force on the plunger opening the orifice. This is the basic principle that is used to open and close solenoid valves.

Fig: Solenoid valve

4. SOFTWARE REQUIREMENTS

Embedded C

Embedded C is a set of language extensions for the C programming language by the C Standards Committee to address commonality issues that exist between C extensions for different embedded systems. Embedded C programming typically requires nonstandard extensions to the c language in order to support enhanced microprocessor features such as fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations. In 2008, the C Standards committee extended the C language to address such capabilities by providing a common standard for all implementations to adhere to. It includes a number of features not available in normal C, such as fixed-point arithmetic, named address spaces and basic I/O hardware addressing. Embedded C uses most of the syntax and semantics of standard c.
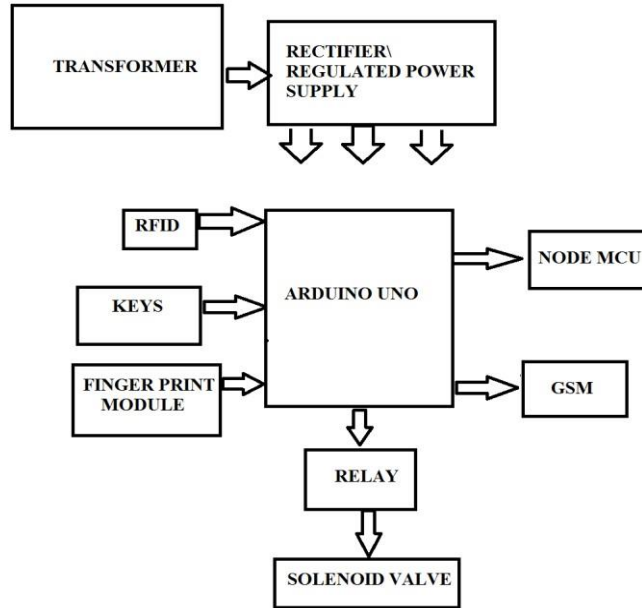
5. BLOCK DIAGRAM

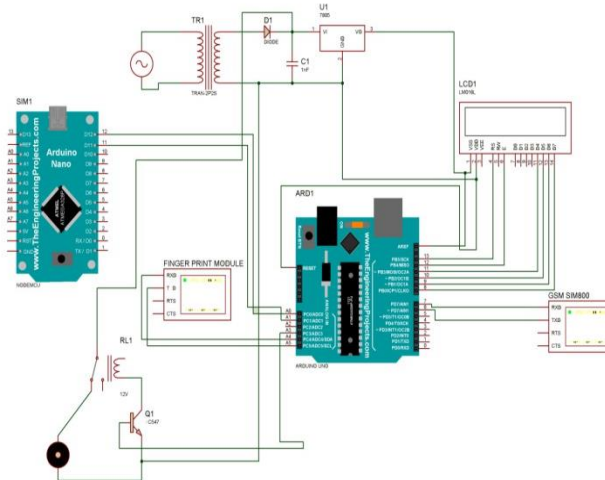
Fig: *System block Diagram*

6. CIRCUIT DIAGRAM

Fig: Circuit Diagram

7. CONCLUSION

Thus advanced car security enhance the security of a vehicle and makes it possible only for some selected people to access the car. Thus by implementing this relatively cheap and easily available system on a car one can ensure much greater security and exclusivity than that offered by a conventional lock and key. There is a scope of further improvement in terms of efficiency and accuracy which can be achieved by improving the hardware to capture the image or by improving the image enhancement techniques. The project "ADVANCED VEHICLE SECURITY BIDIRECTIONAL CONTROL SYSTEM" has been successfully designed and tested .Integrated features of all hardware components used have developed it.

8. REFERENCES

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