ANTI THEFT SYSTEM FOR VEHICLE SECURITY

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ABSTRACT:

In the designed system we can easily communicate with our vehicle from anywhere with the help of GSM and we can command our vehicle according to our need via message to avoid stealing of our vehicle. The existing security system is based on buzzer and is a single password system that can't be easily stolen. The designed system "anti theft system for vehicle security" is based on OTP, being sent to the owner registered number, the owner has to enter the OTP to turn ON the ignition system, and the OTP is random so it can't be stolen by another person.

Keywords: STM32, GSM, GPS, MQ135, mercury switch, buzzer.

1. INTRODUCTION:

Now a day's every system is automated in order to face new challenges. In the present days automated systems have less manual operations, flexibility, reliability and accurate. Due to this demand every field prefers automated control systems. Especially in the field of electronics automated systems are giving good performance**.**

In this paper we provide security to the vehicles i.e. we provide the locking and unlocking system to the vehicles by using GSM technology .Here we can provide security to the vehicle access by adding a password at the starting of the message if entered password is correct send OTP to registered mobile number password and OTP is correct Ignition relay ON otherwise OFF vehicle In other case vehicle theft send live location connected through Google maps.

1.1 Additional features:

Providing the safety and security in the transportation services. Live tracking enhances the easy locating of the stolen and accident vehicle. Smart sensors eliminates drunk and drive and accident analysing issues.

1.2 BLOCK DIAGRAM:
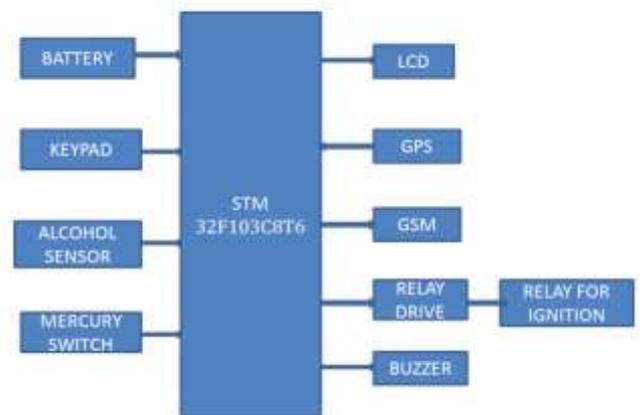
2. EXPLANATION OF EACH BLOCK

2.1 STM32:

The STM32 is a family of micro controller ICs based on the 32-bit RISC ARM Cortex-M33F, Cortex-M7F, Cortex-M4F, Cortex-M3, Cortex-M0+ and Cortex-M0 cores. STMicroelectronics licenses the ARM Processor IP from ARM Holdings. The ARM core designs have numerous configurable options, and ST chooses the individual configuration to use for each design.ST attaches their own peripherals to the core before converting the design in to a silicon diode.

2.1.1STM32F103C8T6:
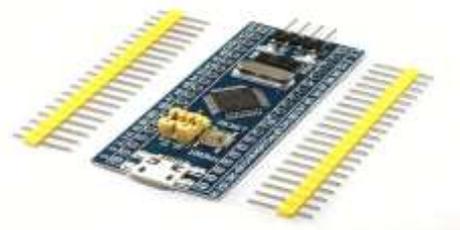
The STM32F103C8T6 is a High density performance line, ARMCortex-M3 32 bit micro controller in 48 pin package. It incorporates high performance RISC core with 72MHz operating frequency, high speed embedded memories, extensive range of enhanced I/Os and peripherals connected to two APB buses. The

STM32F103C8T6 features 12 bit ADC, timers, PWM timer standard and advanced communication interfaces.

2.2 GPS: GPS is known as Global Positioning System used to trace the location of vehicle. A GPS framework computes its position by accurately timing the signal sent by GPS satellites high over the Earth.GPS Receiver gets the location information from satellites. It consists of internal RTC back up and can be directly connected to USART of the microcontroller. The current date, time, longitude, altitude, speed, and travel direction/ heading among other data are provide by the module and can be used in many applications including navigation, fleet management, tracking system, mapping.

2.3 GSM: GSM is known as Global System for Mobile Communication used for communication purpose. GSM module is basically used here for receiving of calls and for sending of confirmation message. Global system for mobiles (GSM) technology is used to establish cellular connection. It is used for transmitting mobile voice and data services. It contains everything needed to support the microcontroller

2.4 MERCURY SWITCH: Mercury switches have one or more sets of electrical contacts in a sealed glass envelope which contains a bead of mercury. The envelope may also contain air, an inert gas, or a vacuum. Gravity is constantly pulling the drop of mercury to the lowest point in the envelope. When the switch is tilted in the appropriate direction, the mercury touches a set of contacts, thus completing the electrical circuit through those contacts. Tilting the switch the opposite direction causes the mercury to move away from that set of contacts, thus breaking that circuit. The switch may contain multiple sets of contacts, closing different sets at different angles, allowing, for example, single-pole, double-throw (*SPDT*) operation

2.5 RELAY: Relays are simple switches which are operated both electrically and mechanically. Relays consist of an electromagnet and also a set of contacts. The switching mechanism is carried out with the help o with the help of the electromagnet. There are also other operating principles for its working. But they differ according to their applications. Most of the devices have the application of relays.

2.6 BUZZER: A buzzer or beeper is a signaling device, usually electronic, typically used in automobiles, household appliances such as a microwave oven, or game shows. It most commonly consists of a number of switches or sensors connected to a control unit that determines if and which button was pushed or a preset time has lapsed, and usually illuminates a light on the appropriate button or control panel, and sounds a warning in the form of a continuous or intermittent buzzing or beeping sound.

2.7 LCD: An LCD is an electronic display module which uses liquid crystal to produce a visible image. The 16×2 LCD display is a very basic module commonly used in DIYs and circuits. The 16×2 translates o a display 16 characters per line in **2** such lines.

2.8 KEYPAD: A keypad is a set of buttons arranged in a block or "pad" which usually bear digits, symbols and usually a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. Keypads are found on many alphanumeric keyboards and on other devices such as calculators, push-button telephones, combination locks and digital door locks which require mainly numeric input.

2.9 MQ135: An alcohol sensor detects the attentiveness of alcohol gas in the air and an analog voltage is an output reading. The sensor can activate at temperatures ranging from -10 to 50° C with a power supply is less than 150 Ma to 5V. The sensing range is from 0.04 mg/L to 4 mg/L, which is suitable for breathalyzers.

3. WORKING:

As we turn on the system we get a random OTP with the help of GSM unit of system and which is generated by STM, after entering the OTP with the use of keypad module which is read by password system. If the entered OTP is correct than only STM turns ON the ignition system. Now, for tracing the location of vehicle, we have to send a message through registered number to the GSM module of system than microcontroller will send the coordinates of location along with google map.

4. RESULT:

As we turn ON the system it will show the message "ANTI THEFT SYSTEM FOR VEHICLE SECURITY" as shown in Fig.2. The system in the Beginning takes around 1 minute to set GPS in a working condition and read out all the units which are connected with it. As the GPS comes in working condition it will send OTP to the owner's registered number. Now as the owner enters the received OTP to the system with help of keypad than the system first make the verification of that OTP, if the entered OTP is correct than it will turn ON the ignition system with the help of relay and the shows the message" valid password thanq" as shown in fig 4 If someone enters the wrong OTP it shows the message "invalid password" as shown in fig 5 and it will send the message "unauthorized person trying to access your vehicle" to the owner's registered number.
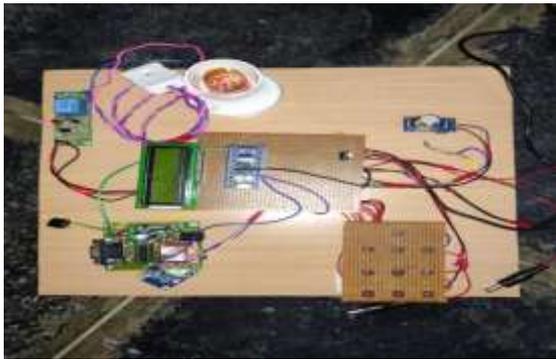
Fig.1 final design of our project

Fig.2 Title of our project

Outputs:

5. Conclusion: Our project is particularly use to safeguard the vehicles. We can easily communicate with our vehicle from anywhere with the help of GSM and The password generated is random so it can't be stolen by another person. . The project is totally based on otp. Finally we can say that a fully secured system for a vehicle has been designed by us and all the objectives taken has been fulfilled successfully.

6. Future scope:

As the system takes some time to send OTP via message, so to minimize this delay we can use remote lockingfeature with our system. As user wants to go somewhere he can turn ON the system from a distance, by doing so, he gets the OTP in the mean time he reaches his / her vehicle, vehicle is ready for access.

Our project is particularly use to safeguard the vehicles. But by adding some more features we can make it use forcruise control system with the help of which we can easily make a certain limit on speed of vehicle from anywhere to avoid fatal accidents.

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