VEHICLE THEFT DETECTION/NOTIFICATION AND REMOTE ENGINE LOCKING

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ABSTRACT

The proposed system's primary goal is to prevent vehicle theft. This is accomplished by sensing the vehicle's theft mode status and sending an SMS that is produced automatically. This SMS is then delivered to the vehicle's owner. After that, the owner can reply with an SMS to disable the vehicle's ignition. As a result, crimes can be minimized to a substantial extent, as automobiles are stolen in big numbers today. As a result, today's cars require a high level of security, which our application can provide.

When a person tries to take the vehicle, the microcontroller is interrupted, and the command to send SMS is issued to the GSM modem. When the owner receives the message, he or she sends it back to the GSM modem. This is done to bring the engine to a halt.

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Keywor ds: - ESP-32, Vibration Sensors, GSM.

1. INTRODUCTON :

The primary goal of a vehicle monitoring system is to provide security to all cars. The primary goal of an accident alert system is to save persons involved in accidents. This refers to car security systems that have been upgraded. The most recent innovations, such as GPS, are extremely beneficial these days; this system allows the owner to monitor and track his car, as well as learn about its prior activities.

This new technology, known as car tracking systems, has generated a number of situations and sends GPS coordinates to a selected mobile phone, computer, or other device. It has a fire detector circuit that detects fire in the car and sends an immediate alert to the target recipient if the temperature inside the vehicle rises over a specified threshold. The infrared sensor, which is also connected to the microcontroller, is used to detect impediments and accidents; in the event of a mishap, a warning will be sent immediately to the intended receiver.

When a user submits a request to the modem's number, the system instantly sends a reply to that mobile, revealing the vehicle's position in terms of latitude and longitude. A programmed was created to locate the exact location of the vehicle and to navigate the track of the moving vehicle on Google Maps. With a precision of 10 meters, the suggested technology is used to locate and navigate the vehicle.

On Google Maps, the exact position is shown as latitude and longitude, as well as the exact Navigated track. The system tracks the location of a certain car and provides data to the user's mobile phone as well as the microcontroller. The received data, in the form of latitude and longitude, is used to locate the vehicle on Google maps, and the output on the LCD is also visible.

2. SYSTEM IMPLEMENTATION:

The Figure 1 shows the Block Diagram of Vehicle theft detection/notification and remote engine locking. Here the main device is an ESP 32 microcontroller, its acts as a processing unit of the system.

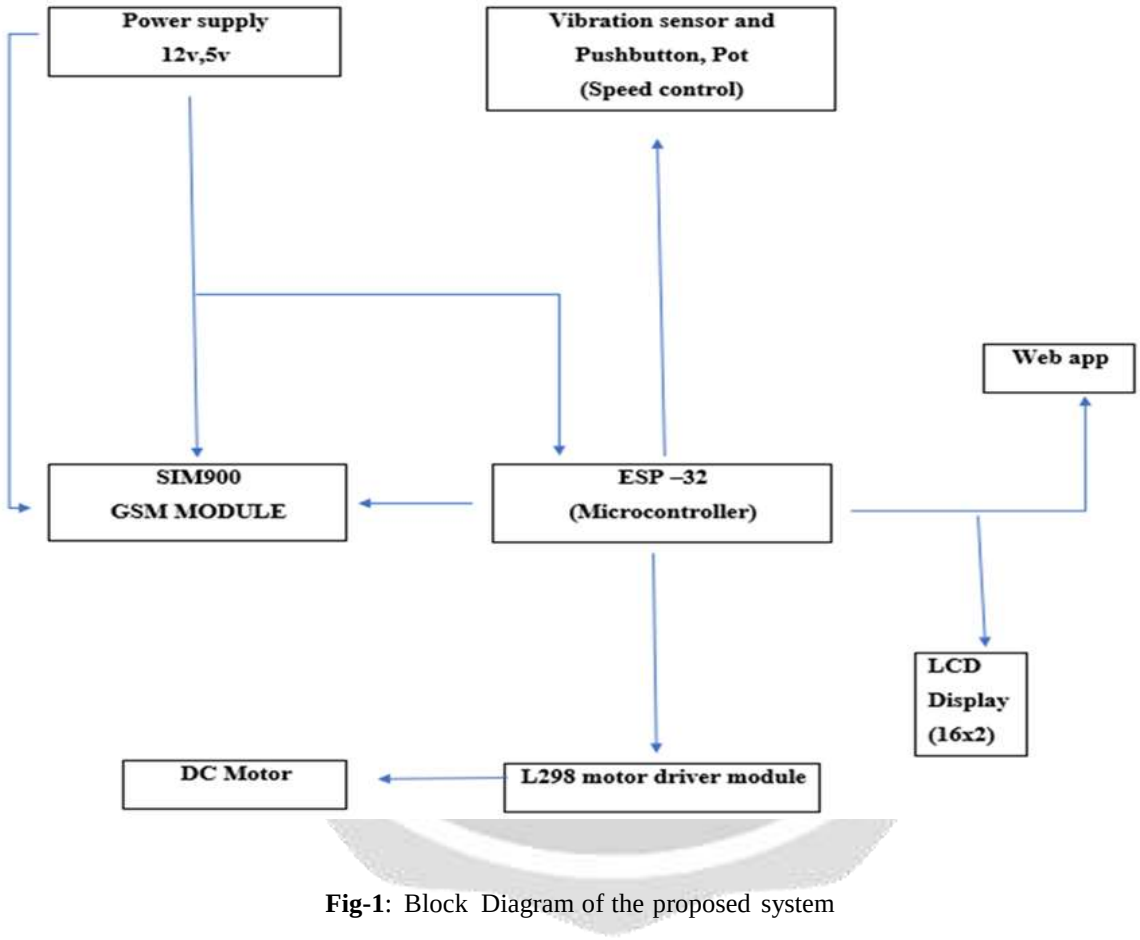

Fig-1: Block Diagram of the proposed system

The micro controller gets the inputs from LCD Display, vibration sensor, web app, and motor driver module. The ESP 32 microcontroller sends the data to the Google sheets it will send mail when the vehicle is getting theft. Power supply gives 12v to GSM module to power up. And 5v to motor driver, LCD display, vibration sensor, push button and to the Micro controller.

The thingspeak is used for monitoring the live status of the vehicle. An 16x2 LCD display is used to show the status of the vehicle.

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2.1 ARDUINO ESP -32 :

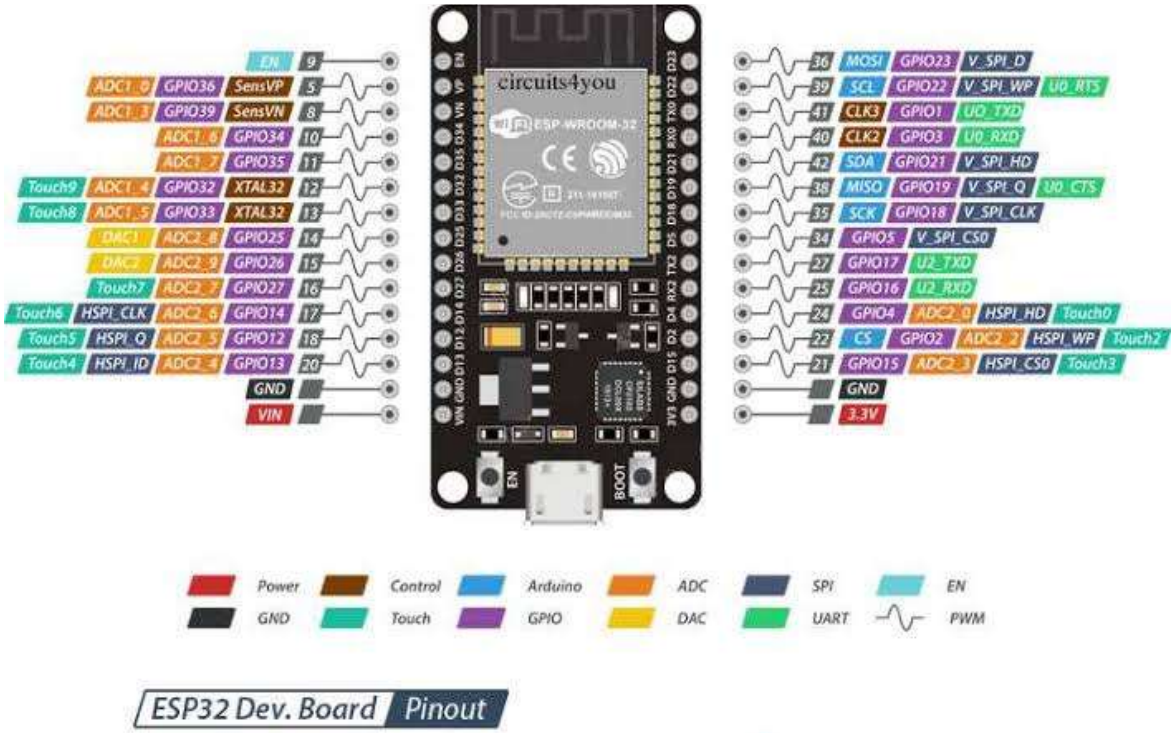

Fig – 2.1: Arduino ESP 32 WROOM32Pin Configuration

The system's processing unit, an ESP 32 microcontroller, is the main component. The ESP 32 microcontroller analyses the activities of these sensors' outputs, and the controller's analysis is relayed into the Thingspeak app.

Although the ESP32 has 48 GPIO pins in total, only 25 of them are separated off to the pin headers on the development board's left and right sides. These pins can be used for a variety of auxiliary tasks, such as: 15 12-bit SAR ADC channels on ADC channels. Firmware settings for the ADC range include 0-1V, 0-1.4V, 0-2V, and 0-4V.Two UART connections are available. Code is loaded serially using one. They also support IrDA and have flow control. 25 channels of PWM pins, or 25 PWM outputs, for controlling motors or dimming LEDs. 8-bit DACs with 2 DAC channels generate real analogue voltages.SPI, I2C, and I2S interfaces are available. There are three SPI interfaces, one I2C interface, and two I2S interfaces if you wish to add sound to your project. Capacitive touch sensing is available on 9GPIOs,or9touchpads.

2.2 : SW-420 Vibration sensor

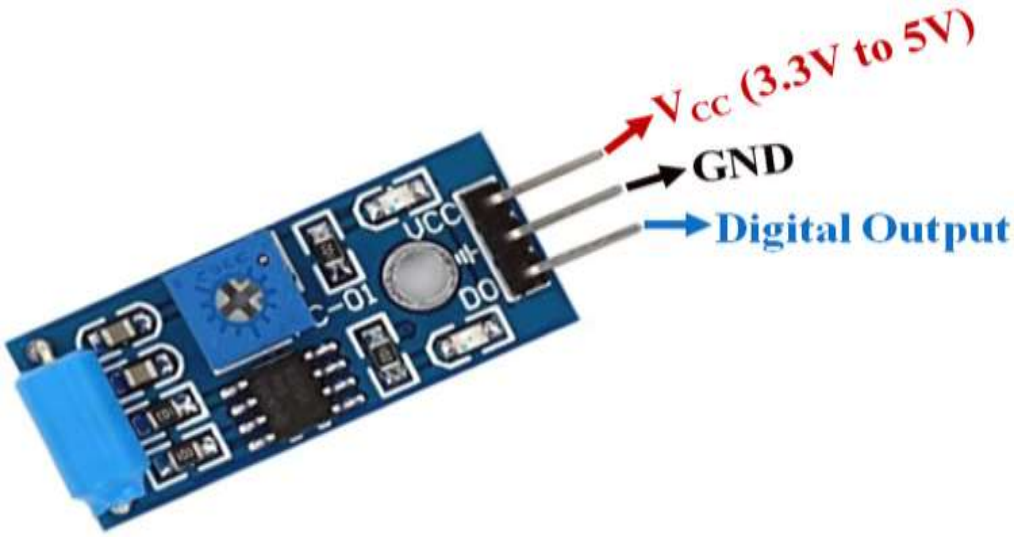

Fig -2.2: SW-420 Vibration sensor

The vibration sensor module based on the **vibration sensor SW-420** and Comparator LM393 is used to detect vibrations. The threshold can adjust using an on-board potentiometer. During no vibration, the sensor provides Logic Low and when the vibration is detected, the sensor provides Logic High.

2.3 : GSM Module

Fig -2.3: GSM Module

The **SIM900A** is a readily available **GSM/GPRS module**,used in many mobile phones and PDA. The module can also be used for developing IOT (Internet of Things) and Embedded Applications. SIM900A is a dual-band GSM/GPRS engine that works on frequencies EGSM 900MHz and DCS 1800MHz. SIM900A features GPRS multi-slot class 10/ class 8 (optional) and supports the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.

3. CONCLUSIONS:

The **"VECHICLE THEFT DETETICTION/NOTIFICATION AND REMOTE ENGINE LOCKING",** has been tested and implemented successfully. This mechanism assures that vechicle theft detection reaches its maximum level. The system generates accurate reports, which improves the systems efficiency. The proposed approach ensures that a vechicle theft notification implemented as quickly as possible. The use of sensors and wireless connection to monitor the availability of total parking slots. As a result, safe and secure of the vechicle..

In future, real-time monitoring of vechicle theft detection might be accomplished using GPS and MQTT (Message Queue Telemetry Transport) to make it easier to share information with smart city officials and keep system performance at a satisfactory level.

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