SMART HELMET AND FUEL THEFT DETECTOR USING ATMEGA 328 P

Dr. P.Gayathri [1], Balakrishna[2], A.Neha Reddy[3],B.Pooja [4]
[1,2,3,4] Dept. of Electronics and Communication, [1]Associate Professor
[1,2,3,4] from TKR College of Engineering and Technology

***Abstract*—** The purpose of this paper is to evaluate the effectiveness of GSM-based technology in sending SMS to its users through an external physical connection system. The Anti-Theft Safety System uses a hybrid system developed for GSM to monitor and protect the vehicle. In a shot of fuel theft, the system sends a message to the vehicle owner, at the same time using the buzzer to start out the alarm installed inside the system. Fuel safety is of paramount importance to the community and as a result of the paper was recognized because of the alarming level of fuel theft cases available in our country and thru this vehicle may protect irrespective of where it's parked, only if the GSM network is roofed. The objectives of this paper are a) Measure petrol theft and fuel level using an infrared sensor. b) Find out fuel levels for distance travel. c) Gather SMS sensing information from the vehicle owner to report theft using the GSM module.

safety and security of the bikers against road accident. Smart helmet has special idea which makes motorcycle driving safety than before, this is implemented using GSM and GPS technology. Other advantages of this project is to measure the alcohol level of the drunken people who is riding the bike. Whenever the alcohol level crosses the predefined value, the alarm starts and get notification about the drunken driver. The author have also discussed about the accident detector and the sensor will active the GPS and find the location and further SMS will send to ambulance or family members

***Keywords*— IoT, PIR, Raspberry-Pi**

INTRODUCTION

Theft of vehicle fuel is currently one of the major worries of many bike and car owners. Many times, we've heard about fuel theft from vehicles or bikes, or some of us have even experienced it firsthand. This detector's primary goal is to prevent such an occurrence. Here, a straightforward, economical solution is put forth that ensures the fuel security of cars wherever the owner of the vehicle may be.
The GSM-based vehicle fuel theft detection system with SMS indication has applications in cars, bikes, and all other types of vehicles. This particular detector has a GSM modem that transmits an SMS to the owner of the vehicle when fuel theft is occurring. In order to put the idea into practise, we utilised communications, specifically SMS, which we either integrated or improved upon to work with the current car security system. The new entity created by this system, machine to human communication, replaces human-to-human communication.

In order to replace the requirement for ongoing human observation, technology already tracks or monitors animals, people, automobiles, and other objects. These technologies must be compact, cost-effective, and power-efficient. Because to its advantages, GSM technology is widely employed in handheld electronics and wireless computers. The goal of this project is to monitor fuel security using GSM technology. By combining SMS features to notify vehicle owners whenever an incident occurs, this system upgrades and improves the security of vehicles.

Because it incorporates digital signal processing, signal and systems, programming, and other topics, the study of telecommunications is an intriguing area of study. This encourages people to innovate technology for everyday use. A power supply unit, LCD16X2, 8051 microcontroller, and GSM modem make up the system. Construction of the Fuel Detector's hardware and software components, as well as their integration with the system as a whole, is required.

LITERATURE SURVEY

When fuel theft is occurring, the project Fuel Theft Detector's GSM modem sends an SMS to the owner of the vehicle. Vehicle Theft of petrol is one of the major many bike owners' and car owners' worries. Many times, we've heard of fuel theft from automobiles or bikes, or some of us have even seen it ourselves. This project's primary goal is to prevent such a circumstance. The level of the fuel in the fuel tank is detected by a level sensor in the SMS-based petrol theft detection system. A specific signal is sent to the microcontroller by this sensor if the level falls below a predetermined threshold level. The microcontroller then activates the buzzer and SMSs the owner of the vehicle or bicycle. The central processing unit, or microcontroller, of the system is its beating heart.

Manoj Saini, Galgotias University Greater Noida, India 2021, Shagufta Khan School of Electrical, Electronics, and Communication Engineering. based on literary sources the following description of research articles can be added to the project to properly document the themes. surveys conducted during this investigation. The project at hand Fuel detection "theft in large automobiles" The mechanism employed in this model relies on wireless vehicle status communication. The path first enters the measurement space, then sends the input data to the recovery server. The location of the vehicle and storage inside the tank are included in the message that is transmitted at the end. Rehabilitating the sensors is an excellent strategy to stop traffic

and theft issues. Here, the amount of fuel in the tank is measured digitally.

The GSM module is used in Naomi Somer Lepcha, Tshering Sangmo Sherpa, Jitendra Singh Tamang 1, 2, and 3's article from the Department of E&C Engineering at the Sikkim Manipal Institute of Technology (SMIT), published in Majitar 2015. The only necessary signals for UART or USART communication are RXD (receive), TXD (transmit), and GND (common ground). For SMS, a GSM modem connects to a microcontroller. Only three of the modem's serial interface's signals, TXD, RXD, and GND, need to be connected to the microcontroller in order to send text messages through the modem.

It is basically a low level programming language to programme a microcontroller, according to Nandini Hiremath, Mrunali Kumbhar1, Aakriti Singh Pathania, and Vinod Patil Faculty, Electronics and Telecommunication Engineering Department, Bharati Vidyapeeth Deemed University College of Engineering, Pune-411043, India (2015). The microcontroller's course of action is determined by the kind of signal it receives, which in turn is determined by the programming language.
A new fast tracking technique for monitoring the highest power point in solar systems was presented by S. Jain and V. Agarwal [57]. Using a configurable step size, an initial approximation of maximum power point was made fast.
The precise maximum power point was then targeted using a traditional technique. The algorithm's strength came from the fact that it tracked an intermediate variable with a monotonically growing one-to-one relationship rather than power, which does not have a one-to-one relationship with duty cycle.
The technique was tested using a Matlab Simulink-modeled solar system.

A method of experimental evaluation was devised by Weidong Xiao and William G. Dunford [59] to assess the effectiveness of tracking utilising photovoltaic modules and inexpensive artificial lighting.

According to D. Shmilovitz [63], monitoring the measurements of the load parameters rather than the output characteristics of the solar panel can be used to track the photovoltaic maximum power point.

Block Diagram

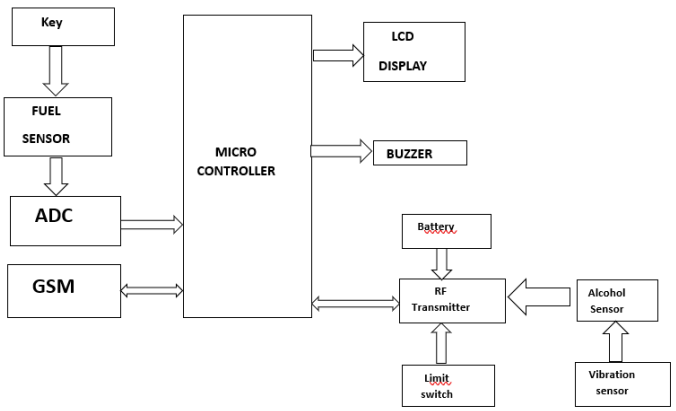
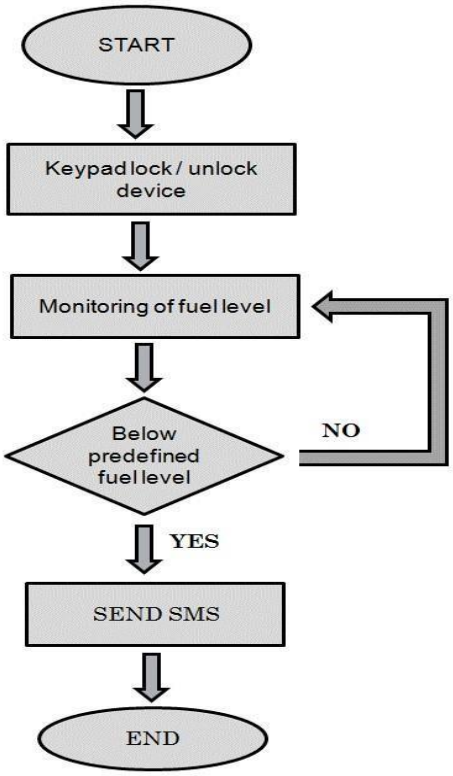


Fig. 1. Block Diagram for Smart helmet and fule theft detector

FLOW CHART



RESULTS

The Arduino-based car speed detector project has a fairly straightforward operation.The inputs from the Float Level Sensors are continually read by Arduino. When an automobile approaching the setup's first sensor triggers an alert, Arduino records a time stamp for the instant the vehicle passes the first float level sensor.As the vehicle reaches the second Float Level, another time stamp is captured.Sensor. Arduino's Millis () function was utilised to record the time stamps. The velocity is then calculated by Arduino under the assumption that there are two float level sensors separated by a distance of 5 metres, and the result is shown on the 162x2 LCD Display in kilometres per hour.

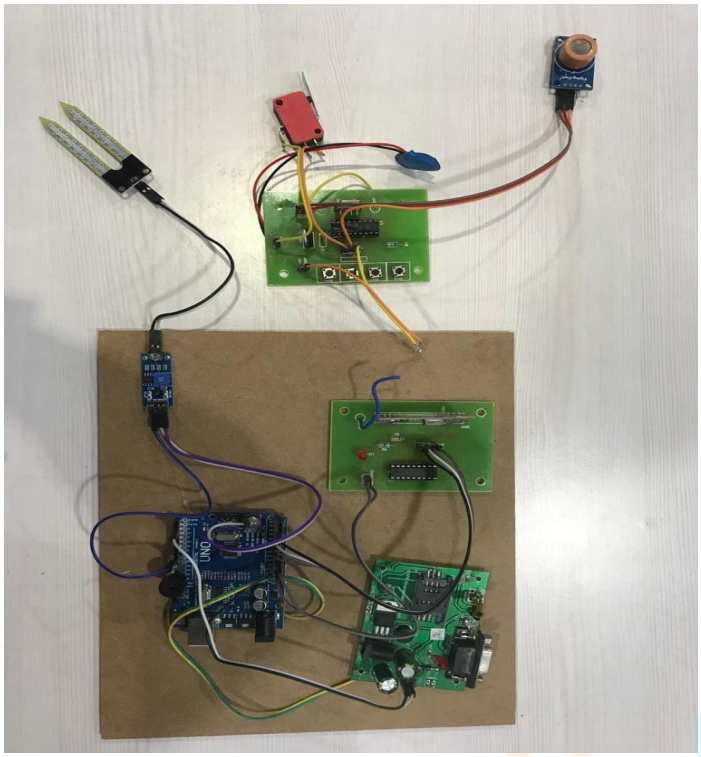


Fig. 2. shows the information system

CONCLUSION

A successful design and construction of a GSM-based anti-fuel theft security system has been accomplished. It is affordable, straightforward, small, and reliable. after the obstruction of the sensor, that is, between the LED and the phototransistor An alarm message is delivered to the mobile number stored in the microcontroller once the notice about the fuel theft is displayed on the LCD screen. When the microcontroller receives a signal, it sends a text message and activates an alarm. The performance of the system is satisfactory. This system has a lot of benefits, including high efficiency, a broad operating range, cheap operating costs, robust expandability, and ease of use in cars or anywhere there is a fuel storage facility. This system is relatively straightforward to upgrade, which leaves it open to future requirements and also increases efficiency. The entire setup is focused on reducing fuel theft. The system uses GPS and GSM technology to increase vehicle security. This technology can be improved further by incorporating a camera and creating a mobile application to obtain a real-time view of the car, making it easier for the owner of the car to follow the crime scene (theft). Using a smart helmet system that can detect whether a driver has consumed alcohol or not, helmet authentication is a popular parenting tool because it requires drivers to wear a helmet before the car will start. Because the smart helmet has a vibration sensor, it can also detect when a person has an accident and will send a message to the owner of the car in question as soon as it happens.

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