

Fuel Checker and Theft Indication

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ABSTRACT

This project has a GSM modem which sends message to owner of vehicle when there is fuel theft going on. Vehicle petrol theft is one of the main concerns of many bike owners and car owners. Many times we have heard or some of us have already faced that petrol from their bike or cars has been stolen. Main intention of this project is to avoid such situation. In SMS based petrol theft detection system, we have used a Level sensor to detect the petrol level in petrol tank. If the level goes below certain threshold level then this sensor gives a particular signal to ARM. Then ARM turns on the buzzer and sends SMS to the car/bike owner. ARM is a main heart or Central Processing Unit of the system.

KEYWORDS: Low cost sensor, Hall Effect sensor, Rotation of rotor, GSM, ARM7 (LPC2138), Theft indication, Keil software.

1. Introduction:

The project mainly focuses on transmission of textual data through air interface by the use of GSM through asynchronous serial communication. The data will be processed by the microcontroller. The data will be displayed on LCD. In addition to that address matching is done and data can be received only by the dedicated receiver.

Actually what happens is, sending sms through phone has become very popular and if we can use this sms to control devices and in displaying data. It is possible to receive or decode the sms globally by using gsm, by the any part of world we can control and display data on Lcd board.

In this project we not only send the data but send the data with pass code also. Which enables us to prevent the unauthorized use of Lcd display board and only the person who have pass code can have access to Lcd board. Important feature of thesis is we are using gsm network by which we can control Lcd display board by the any part of globe.

If we must have the respected pass code. And the pass code is ok then the correct data is to be displayed on LCD.

2.SYSTEM OVERVIEW:

The selection of a microcontroller plays very important role in any embedded system. According to the need of the system a microcontroller is chosen. Here in this system in order to design a low cost automatic water flow meter ARM 7 LPC2138 microcontroller is used. We have designed and developed a low cost water flow meter mainly for irrigation purposes to deliver only the correct amount of water as per requirement to the irrigation fields. Keeping records of flow meter readings regularly can indicate when the pumping system is deteriorating. LPC2138 microcontroller is used to monitor the sensor with which LCD is interfaced to display the flow rate of water. Flow rate can be determined inferentially by different techniques like change in velocity or kinetic energy. Here we have determined flow rate by change in velocity of water. Velocity depends on the pressure that forces the through pipelines. As the pipe's cross-sectional area is known and remains constant, the average velocity is an indication of the flow rate. The basis relationship for determining the liquid's flow rate in such cases is shown in equation 2.

$$Q = V * A \quad \dots [2]$$

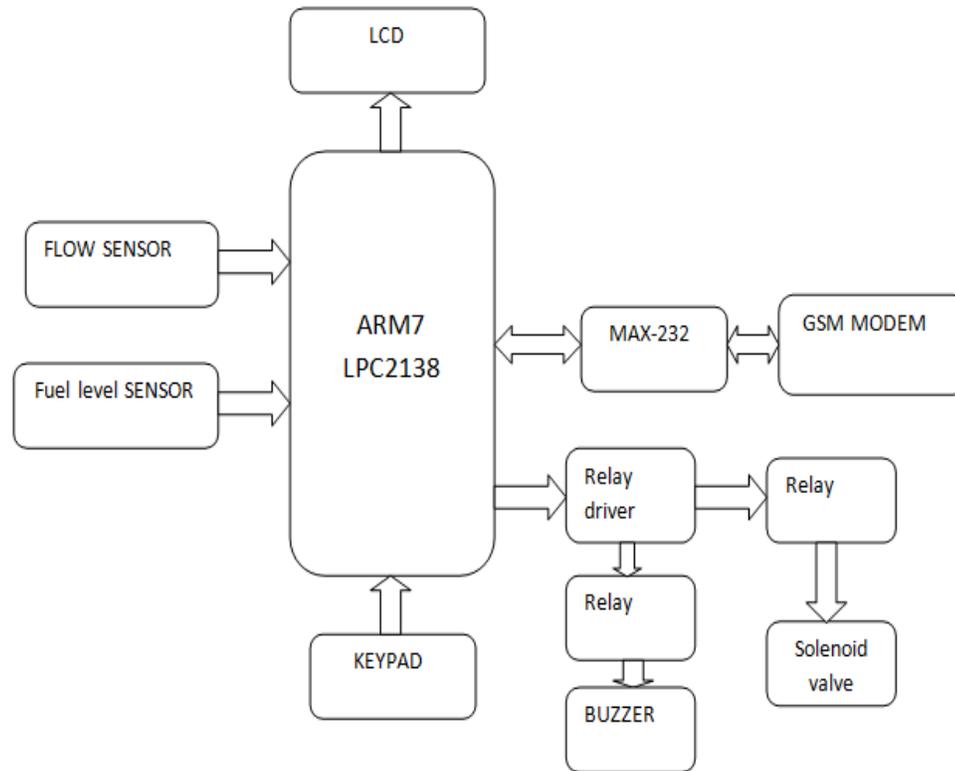


Fig 2.1: Block diagram of the system

Where, Q is flow rate/total flow of water through the pipe, V is average velocity of the flow and A is the cross-sectional area of the pipe. Viscosity, density and the friction of the liquid in contact with the pipe also influence the flow rate of water.

LPC2138 microcontroller based system is shown in figure 8. A tank is used to supply water through the sensor to the required field. Inlet of water to the sensor is through the tank and outlet of water is from another side of sensor which is fed directly to the field. When no water flows through the pipelines as if the supply of water stops at any moment the pump gets automatically off hence saving the electricity too. The system is programmed according to the requirement in the fields. So this reduces the man's effort of keeping eye every time on field when filling water and also helps in conservation of water.

There are two modes in which this systems works effectively:

- A) Fuel filling mode
- B) Theft detection mode

A) Fuel filling mode:

Fuel is filled by prescribed amount. For that purpose we are using flow sensor. When user enters the quantity of fuel, solenoid valve is open and flow sensor measures the quantity of filled fuel is equal with the entered quantity. If filling is not equal to prescribed amount then buzzer will on.

B) Theft detection mode:

In this mode level sensor checks the level of the fuel. If the level of fuel changes in stable position i.e. when vehicle is parked, then buzzer will get on. At the same time message will be sent to the concerned person, to the owner of the vehicle. So that theft will be detected.

3.CONCLUSION:

This technique has benefit of using Hall Effect sensor in measuring the flow rate of water within the tank. Application of hall sensor in this field proves to be a good system that can detect the leakage in the pipelines if we observe the flow rate of water regularly, saves water as excess water would not be delivered to the crops which may also damage it and at last but most important that is in the terms of cost the system proves to be a low cost with many of the benefits as compared to the other products available in the market. So development of low cost water flow meter can replace the other high cost water flow measuring meters available in the market. This system eliminates the manual mistakes in flow rate measurement. Also it is more accurate in comparison to other types of meters. This system is more attractive, as it provides automatic operation with great accuracy and the most too cheap method to measure flow rate of water in some application.

It is a small kit that consists of a GSM module and several other components. The system makes use of an embedded system based on the GSM technology. An interfacing mobile is connected to the microcontroller. When a person attempts fuel theft then the microcontroller commands the GSM modem to send a text message as an alert to the vehicle owner and further an alarm is raised by the buzzer installed within the system.

4.ACKNOWLEDGEMENT:

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5..References:

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