

# Fuel Level Monitoring & Alert System Using IOT

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**Abstract :** Unlike an existing system for the fuel level monitoring . It differs by monitoring the fuel level and provide the access to monitor the vehicle in any place with the use of (IOT).Automatically updates the information of fuel entering inside the tank .MAIN PURPOSE OF THIS DEVICE IS TO PREVENT FRAUD IN REFUELING STATION where in some cases the quantity of fuel displayed in the filling machine is not actual quantity of fuel entering inside the tanks & FUEL THEFT IDENTIFICATION USING (IOT).

**Index Terms** - LCD Display , IOT Module ,Mobile Application.

## I. INTRODUCTION

### A.GENERAL DESCRIPTION:

Float based control of the fuel level system using Raspberry Pi and a IOT alert message would be received if the theft of fuel is occurred .All this process must be executed in fast manner and response must be in immediate action .A conductivity is been placed in the cap of the fuel tank as to get notification when the cap is been opened. The indication is that an alert will be sent automatically to the concern person via mobile application. Main motive of this system is to produce a maximum solution for fuel theft an indication to the concern person at the time of refueling , so this purpose of the device is to prevent fraud in petrol pumps where in some cases the quantity of fuel displayed in the filling machine is not the actual quantity of fuel going inside the tank. In our project the main blocks are Raspberry pi unit, fuel level float sensor, Mobile App and LCD display unit.

## II. IOT MODULE

The IOT (Internet of Things ) Drawing speaking to the Internet of Things (IOT).The Internet of things (IOT) is the system of physical gadgets, vehicles ,home machines and different things inserted with hardware, programming, sensors, actuators, and system network which empowers these articles to interface and trade information. Every thing is exceptionally identifiable through its installed figuring framework however can between work inside the current Internet foundation.

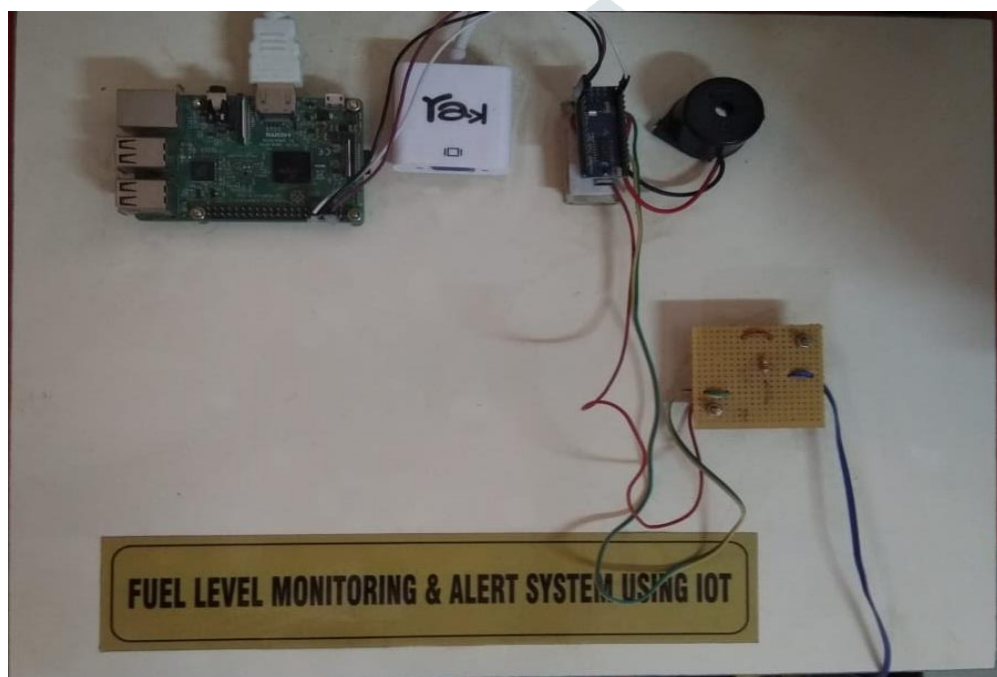
### A. CONTENT

IOT are generally broad acknowledgment of the developing idea of the structure and administration of the Internet of Things , reasonable and secure arrangement of IOT arrangements must plan for "anarchic adaptability". Utilization of the idea of anarchic versatility can be reached out to physical frameworks (i.e. controlled true objects),by temperance of those frameworks being intended to represent questionable administration fates .This "hard anarchic adaptability" in this way gives a pathway forward to completely understand the capability of Internet of things arrangements by specifically obliging physical frameworks to take into account all administration administrations without gambling physical disappointment. Dark colored University PC researcher Michael Littman has contended that effective execution of the Internet of things requires thought of the interfaces ease of use and in addition the innovation itself. These interfaces should be more easy to use as well as better coordinated; " If clients need to learn distinctive interfaces for their vacuums ,their locks, their sprinklers, their lights, and their coffeemakers, its intense to state that their lives have been made any less demanding.

## III.WORKING

- The float sensor is used to sense the monitor of the fuel tank and an analog signal is obtained using a voltage divider circuit.
- The Analog signal is given to the Raspberry pi through analog input ports.
- The Raspberry pi Microcontroller reads the input from the sensor and provides the output signal (pulse width modulation signal ) which is given as input to the actuators .
- IOT Module are used as median to notify the alert via mobile application .
- Thus the imitation of fuel theft is received.

Measuring the fuel level in the fuel tank For measuring the fuel level ,a float level sensor is used. The sensor is used to obtain the level in the fuel tank .The sensor consists of a potentiometer and a float capsule along with a rod. The fuel when filled in the tank the level increases ,The transmitting unit with the float capsule which rotates according to the movement of the rod. The rotational movement of the capsule is transferred to the induction potentiometer via a gear mechanism so that the change in the liquid level is converted into DC signal to an indicator, receiver or computer. The capsule rotates in proportion to the change in the liquid level. The rotational speed is increased or decreased by the gear mechanism and is transferred to the induction potentiometer. The potentiometer reads the value and pass the input to the Analog to Digital converter . The A/D converter gives the 8-bit numeric data in accordance with the fuel level in the tank. For the fuel level measurement PIC18f4550 microcontroller is used. Timer 1 is interfaced with the controller so that it will enables the controller to read the data in data bus at a particular time interval. Then read data is stored in the accumulator. The system consists of level detector circuitry integrated with IOT module . Upon reaching the critical water level in the tank , an indication is sent through IOT module to the technician incharge for further action.



#### IV.RASPBERRY PI

At first glance ,the Raspberry pi is a cheap PC that can fit many light and medium-obligation errands. It depends on a Broadcom SOC (System on a chip) that incorporates an ARM7 center, a videocoreiv GPU and USB controller. It has either 256MB or 512MB on the board and a SD card opening for capacity .That 's the chilly specialized subtle elements ,now for the less unmistakable issues . Alternate machines accessible at the time were the Sinclair Spectrum , BBC Micro,TRS-80(if you lived in the US ) and Apple II. Aside from being moderately reasonable (much of the time) the other thing that these microcomputers shared was straightforwardness ... they booted specifically into a BASIC translator, and you could compose very unpredictable programming totally without anyone else (given a suitable level of ability). Throughout the following 30 years , PCs turned out to be more impervious and complex ,and the possibility of programming improvement as something anybody, even a kid , may turn their hands to, turned out to be less and less conceivable.

## V. CAPABILITIES AND LIMITATIONS

The essential restrictions identified with IOT are the absence of self-ruling activity fueled by setting. The second piece of that announcement is essential. We are obtaining a level of mechanization with IOT-as things get associated, controlling them utilizing programming winds up less demanding. Setting up a couple of tenets/gadgets is alright however as the quantity of gadgets and things around you develops – it will get "restricting" and entangled. The huge restriction IOT needs to defeat throughout the following decade is getting the unique circumstance, and doing activities self-sufficiently. A framework that learns, and adjusts without being arranged.

## VI. LITERATURE REVIEW

This paper abridges and audits distinctive innovative improvements for making productive and financially savvy fuel ready framework. Such fuel level observing framework bargains the fuel level drop sign at abruptly with a scope of time and put and whenever caution to the proprietor of the vehicle all the sign will be gotten through the portable application. While equipment development is wonderful, we require UX advancement in equivalent measure to accomplish ease of use in the IOT.

## VII. CONCLUSION.

The fuel level system was first created to indicate fuel level in vehicles. It was observed that after evolutions of vehicles and necessity of accuracy was needed then the digital level fuel sensing is implemented. Digital level monitoring system shows precise range but the theft control could not be possible as a result using the GSM and conductivity this can be controlled. In this way, the fuel level theft and range of fuel level has been achieved successfully. So, now it is possible that fuel enters into the fuel tank can be monitored by the conductivity. The A/D converter with LCD was fitted with the analog fuel gauge of the two wheeler and the result was successfully obtained. The A/D converter shows the amount of fuel in fuel tank in exact liters (ex: 1.3, 1.4, 1.5). The A/D converter shows the exact fuel in liters only when the fuel in the fuel tank is more than 1 liter. The accuracy level is up to 95-98% because the error was around + or - 0.2 liters, because

Of the fuel in the fuel tank was measured on the basis of float level in the tank and we didn't use any other sensors. It displays the exact liters on the plane roads and shows error value on slope surfaces.

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