

Fuel Level Measurement

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Abstract: Measuring fuel level is an important factor in all industries. It consists of manual interface or directly check the level. Inspired by fuel level measurement for automatic fuel measure a fuel level measurement by microcontroller is created by automatically means used for measuring. Fuel level without human interface. The development of electronics network comprised flexible, easy and continuous device that are compatible with large industries.

Keywords: Fuel, 8051 Microcontroller, level measurement.

I. INTRODUCTION:

Measuring fuel is highly difficult making it easy to neglect the complexity of the largest part of industry. Fuel is do the send to energy to every machine. It allows to run continuous to every machine. To achieve higher flexible system to measure in its sensing capability and several different type of highly specified sense reports are microcontrollers for processing the collected signals is shown on display.

HISTORY:

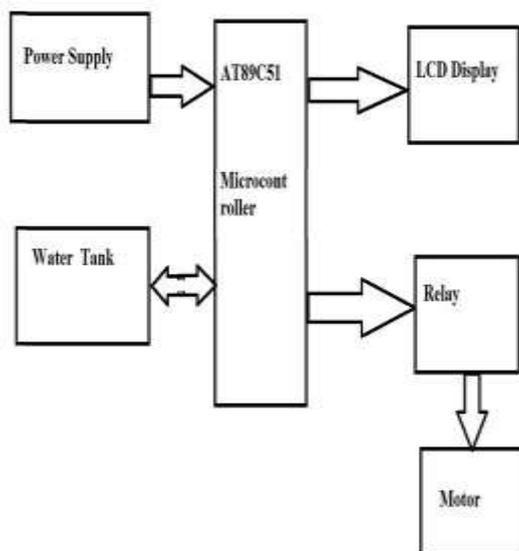
II. ARCHITECTURE:

Fuel measurement for industries in which sensor and other equipment integrated with circuit bring the new direction to the flexibility in electronics, the ultra-sonic sensor transfers signal it detects the object as how empty fuel tank is it send signals to microcontroller process on it send the signals to 16x2 display.

III. FEATURES:

The fuel measurement using microcontroller 8051 developed for in applications of industries. industries could provide with lots of complex to measure fuel level. The fuel level measurement which mainly consists signal sensing material associated electronics devices for level reading might also provide detect sense. The amplify of associated signal then the signal passes to the 16x2 LCD display that will show how empty tank is.

IV. BLOCK DIAGRAM:



V. WORKING:

This system mainly works on a principle that “water conducts electricity”. The four wires which are dipped into the tank will indicate the different water levels. Based on the outputs of these wires, microcontroller displays water level on LCD as well as controls the motor. Initially when the tank is empty, LCD will display the message LOW and motor runs automatically. When water level reaches to half level, now LCD displays HALF and still motor runs. When the tank is full, LCD displays FULL and motor automatically stops. Again, the motor runs when water level in the tank becomes LOW.

Here are 3 main conditions:

1. There is no water available in the source tank.

2. Intermediate level i.e., either of 3rd to 7th level.
3. There is ample amount of water available in the source tank.

CONDITION 1: Water not available

When the tank is empty there is no conductive path between any of the 8 indicating probes and the common probe (which is connected to 5v+ supply) so the transistor base emitter region will not have sufficient biasing voltage hence it remains in cut off region and the output across its collector will be V_c approximately 4.2v.

As in this case the microcontroller is used in the active low region (which means it considers 0-2 volts for HIGH and 3-5 volts for LOW) now the output of transistor which is 4.2v approximately will be considered as LOW by the microcontroller and hence the default value given by microcontroller to the seven segment display is 0 which indicates as the tank is empty.

CONDITION 2: Intermediate levels

Now as the water starts filling in the tank a conductive path is established between the sensing probes and the common probe and the corresponding transistors get sufficient biasing at their base, they start conducting and now the outputs will be V_{ce} (i.e., 1.2v-1.8v) approximately which is given to microcontroller.

Here the microcontroller is programmed as a priority encoder which detects the highest priority input and displays corresponding water level in the seven-segment display. In this project while the water level reaches the 7th level i.e., last but one level along with display in seven segment a discontinuous buzzer is activated which warns user that tank is going to be full soon.

CONDITION 3: Water full

When the tank becomes full, the top-level probe gets the conductive path through water and the corresponding transistor gets into conduction whose output given to microcontroller with this input microcontroller not only displays the level in seven segment display but also activates the continuous buzzer by which user can understand that tank is full and can switch off the motor and save water.

For detecting the level of the material IR sensors are used in this system. The IR sensor will keep on monitoring the level of the material. When the material is above the threshold level the led will be on. Once the material is full in pipe it will automatically send to the authorized person indicating that material is overloaded via GSM. The authority person holds RF ID card clears the excess mess. Once the material is cleared it will send a message to the control station indicating that material had cleared. In case of any fire accidents in the machinery then the fire alert message is sent to the control station via GSM. If in case of fire inside the collection bin then buzzer will be automatically on. It will intimate the person about the fire occurrence in the garbage's modem mainly consists of antenna for wireless communication, SIM holder, and communication port, ON or OFF switches and power supply. A GSM modem is connected to the computer via serial or USB cable. The advantage of connecting is it provides mobile network to the computer to transfer and exchange information with modems. Meanwhile it provides mobile internet connectivity and also used for forwarding the SMS and MMS messages. An UART, universal asynchronous receiver / transmitter is responsible for performing the main task in serial communications with computers. The device changes incoming parallel information to serial data which can be sent on a communication line. Radio-frequency identification (RF ID) is the wireless non-contact use of radio-frequency electromagnetic fields to transfer data.

- A. Advantage:
 - Self-measuring Accurate range
 - It replaces present system
 - Deal with challenge
- B. Disadvantage
 - Single use
 - Transpiration doesn't take properly

VI. Conclusion:

In the place the one person is always need there to measure fuel by stick. Pull stick pull stick in the tank and measure the level. With the help of fuel measurement, it makes easy to measure the fuel without any human and it will be an accurate.

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