

What is Water Level Sensor?



This sensor detects the level of water or liquid in a container. Based on the fact that water is a conductor of electricity, the sensor is designed with strips of conductive material to measure the resistance between the terminals. When the sensor is dipped in the liquid, the liquid bridges the traces and start conducting. The resistance value is converted to a voltage by the sensor circuit that could be used to estimate the water level in the container.

Applications

The sensor generates an output voltage that changes with the water level. The voltage to water level relation is not linear. This can be calibrated such that the actual water level may be estimated.

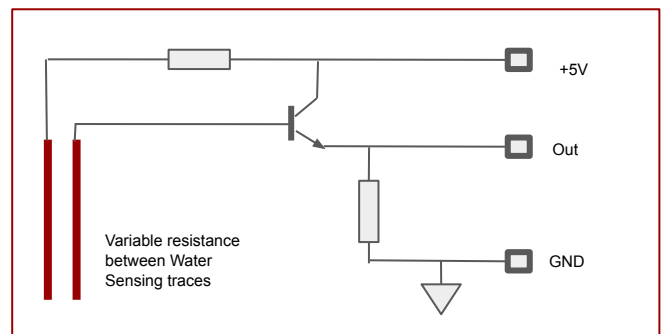
Applications:

Water flow meter in water tanks

In case of large water tanks, water level sensor can just be attached in the tank walls, and proves to be efficient which replaces the need of manual efforts in checking level.

Fuel Level Meter

To measure fuel level in automobiles, same principle of water level sensor is used. The fuel tank has a level sensor attached which governs the user as soon as the fuel level drops below a certain limit. The only condition to be met is that the fuel should conduct the conductive traces of the sensor.



The schematic of water level sensor: The resistance between the traces drops when the sensor is inserted in water and the transistor turns on and the output voltage increases.

Water Level Sensor

(Application Note)



Project

To build a model that detects the depth/level of the liquid and outputs the result through LED.

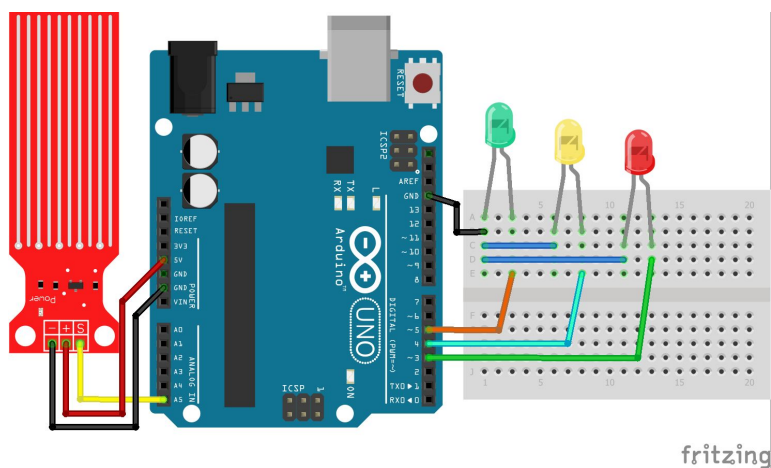
Components Required

Component	Z2M Part No.	Quantity
Water Level Sensor	EMS-00018-A	1
Arduino UNO	EMX-00001-A	1
LED	EDD-00002-A/B/C	3

Procedure

- Connect **+** pin of sensor to **5V** of Arduino
- Connect **-** pin of sensor to **GND** of Arduino
- Connect **S** pin of sensor to **pin A5** of Arduino
- Connect **Red LED** to **pin 3** of Arduino
- Connect **Yellow LED** to **pin 4** of Arduino
- Connect **Green LED** to **pin 5** of Arduino

Schematic



Challenge Yourself

Design a water leak detector and alarm for homes.

Code

```

/* Change these values based on your calibration */
int lowerThreshold = 600;
int upperThreshold = 650;

/* Sensor pin connected to A5 to Arduino*/
#define waterlevel A5

/* Declare pins to which LEDs are connected*/
int redLED = 3;
int yellowLED = 4;
int greenLED = 5;

void setup() {
  Serial.begin(9600);
  pinMode(waterlevel, INPUT);

  /* Set LED pins as an OUTPUT*/
  pinMode(redLED, OUTPUT);
  pinMode(yellowLED, OUTPUT);
  pinMode(greenLED, OUTPUT);

  /* Initially turn off all LEDs*/
  digitalWrite(redLED, LOW);
  digitalWrite(yellowLED, LOW);
  digitalWrite(greenLED, LOW);
}

void loop() {
  int level = analogRead(waterlevel);
  /*Reading the sensor value*/
  Serial.print(level);

  if (level > 0 && level < 500) {
    /*checking if the level of liquid be at 0 level*/
    Serial.println("Water Level: Empty");
    digitalWrite(redLED, LOW);
    digitalWrite(yellowLED, LOW);
    digitalWrite(greenLED, LOW);
  }

  else if (level > 500 && level <= lowerThreshold) {
    /*else, checking if the level of liquid be in between 0
    and lower threshold*/
    Serial.println("Water Level: Low");
    digitalWrite(redLED, HIGH); /*putting Red LED to
    HIGH state*/
    digitalWrite(yellowLED, LOW);
    digitalWrite(greenLED, LOW);
  }

  else if (level > lowerThreshold && level <=
  upperThreshold) { /*else, checking if the level of
  liquid be in between lower threshold and upper
  threshold*/
    Serial.println("Water Level: Medium");
    digitalWrite(redLED, LOW);
    digitalWrite(yellowLED, HIGH); /*putting Yellow LED
    to HIGH state*/
    digitalWrite(greenLED, LOW);
  }

  else if (level > upperThreshold) { /*else, checking if
  the level of liquid be above upper threshold*/
    Serial.println("Water Level: High");
    digitalWrite(redLED, LOW);
    digitalWrite(yellowLED, LOW);
    digitalWrite(greenLED, HIGH); /*putting Green LED to
    HIGH state*/
  }

  delay(1000);
}

```