**Department of CSE**

**Course Code**

**CSE406**

**Course Title**

**Internet of Things**

**Lab 02**

**Section : 01 Semester : Summer2025**

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**Submitted By**

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**Submitted To**

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### Objective:

To design and implement a simple IoT-based water level detection system using an Arduino microcontroller, water level sensor, and three LED indicators to visually represent the current water level as **Low**, **Medium**, or **High** using **Green**, **Yellow**, and **Red** lights respectively.

### Problem Statement:

In this lab, I **develop a prototype of an automated water level monitoring system** using an Arduino Uno, a water level sensor, and three LEDs. The system should detect the water level and indicate it via color-coded LEDs as follows:

**i) Low Depth :** Turn on **Green** LED

**ii)Medium Depth:** Turn on **Yellow** LED

**iii)High Depth (Deep water):** Turn on **Red** LED

### Required Components: Arduino Uno,Water level sensor,3 LEDs (Green, Yellow, Red),Resistors,Breadboard, wires,USB cable for Arduino,ETC.

### Circuit Diagram:

### Arduino Code:

#define LED\_RED 13

#define LED\_YELLOW 12

#define LED\_GREEN 8

void setup(){

Serial.begin(9600); // Communication started with 9600 baud

pinMode(LED\_RED, OUTPUT);

pinMode(LED\_YELLOW, OUTPUT);

pinMode(LED\_GREEN, OUTPUT);

}

void loop(){

int sensor=analogRead(A0); // Incoming analog signal read

Serial.println(sensor); // Display sensor reading

digitalWrite(LED\_GREEN, LOW);

digitalWrite(LED\_YELLOW, LOW);

digitalWrite(LED\_RED, LOW);

if(sensor > 20 && sensor <= 100){

digitalWrite(LED\_GREEN, HIGH);

}

else if(sensor > 100 && sensor <= 200){

digitalWrite(LED\_YELLOW, HIGH);

}

else if(sensor > 200){

digitalWrite(LED\_RED, HIGH);

}

}

### Output Description:

**i)** When the water level is **low**, the sensor value is between **20–100**, and **Green LED** lights up.

**ii)**When the water level is **medium**, the sensor value is between **101–200**, and **Yellow LED** turns on.

**iii)**When the water level is **high**, the sensor value is greater than **200**, and **Red LED** lights up.

### Conclusion:

In this lab, i successfully built a simple system to check the water level using a sensor and showed the result using three different LEDs. The green, yellow, and red lights helped us understand whether the water level was low, medium, or high. This kind of system can be really useful in water tanks, farming, or flood warning systems.