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# Microcontroller based Industrial Applications - Project Statement
# Dam Water level Alert System

**Description:** Develop a prototype that mimics a "Dam water level sensing and alert system".

**Problem Statement:** The problem statement of this project is to develop a prototype that mimics a "Dam water level sensing and alert system". Upon successful completion of this project, we aim to have a functioning prototype of the Dam Water Level Sensing and Alert System that can serve as a foundation for the development of a comprehensive solution for dam safety and management. This system will contribute to the early detection of potential dam-related issues, enhancing safety measures and reducing the risks associated with water level fluctuations in dams.
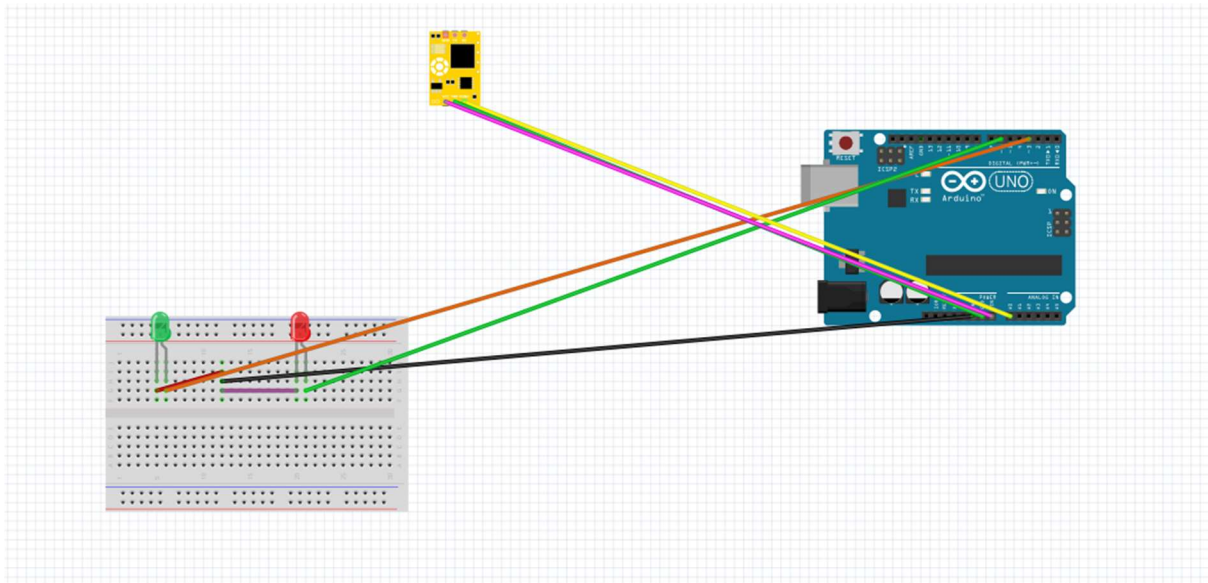
**Scope of the Solution:** Dams play a crucial role in water resource management, agriculture, and flood control. Monitoring the water level in dams is essential to ensure their safe and efficient operation. Sudden fluctuations in water levels can pose significant risks to downstream areas, infrastructure, and the environment. The primary problem this project aims to address is the lack of a reliable, cost-effective, and automated system for monitoring dam water levels and providing timely alerts to relevant authorities and stakeholders.

The scope of the solution aims to provide a reliable, cost-effective, and user-friendly system for dam water level monitoring and alerting. It should enhance dam safety and management by ensuring that potential issues are detected early, allowing for timely responses and risk reduction. The project's success will depend on thorough development, testing, and validation of all system components to ensure its effectiveness in real-world dam environments.

**Required components to develop solutions:**

1. Arduino IDE (Software)
2. Arduino UNO board
3. Bread Board
4. Jumper wires
5. LED lights
6. Water level Sensor
7. Desktop/Laptop
8. Arduino cable
9. Water

**Simulated Circuit (Fritzing):**



**Video of the demo:**

https://drive.google.com/file/d/1awV9XyjZDIRXMLRR5y9k-zqme3-uVMj_/view?usp=sharing

**Code for the solution:**

```
1   // define the pins for the LEDs
2   int ledPin1 = 3;
3   int ledPin2 = 6;
4   void setup() {
5     pinMode(ledPin1, OUTPUT);
6     pinMode(ledPin2, OUTPUT);
7     Serial.begin(9600);
8   }
9
10  void loop() {
11    int value = analogRead(A0);
12    Serial.print("Value: ");
13    Serial.print(value);
14    Serial.print("    ");
15
16    Serial.print("Water Level: ");
17
18    if (value == 0) {
19      Serial.println("Empty");
20      digitalWrite(ledPin1, LOW);
21      digitalWrite(ledPin2, LOW);
22    } else if (value > 1 && value < 350) {
23      Serial.println("Low");
24      digitalWrite(ledPin2, LOW);
25      digitalWrite(ledPin1, HIGH);
26    } else if (value > 350 && value < 510) {
27      Serial.println("Medium");
28      digitalWrite(ledPin1, LOW);
29      digitalWrite(ledPin2, HIGH);
30    } else if (value > 510) {
31      Serial.println("High");
32      digitalWrite(ledPin1, HIGH);
33      digitalWrite(ledPin2, HIGH);
34    }
35    delay(1000);  // Adjust the delay as needed
36  }
```

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}
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## GITHUB Repository (link):

https://github.com/vaishh26/L_T_Project