**GNANAMANI COLLEGE Of TECHNOLOGY**

DEPARTMENT : BIO MEDICAL ENGINEERING

YEAR : Third Year

**TOPIC : SMART WATER FOUNTAIN**

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**SMART WATER FOUNTAIN**

**Definition**

The problem you’re describing is creating a smart water fountain using IoT(Internet of Things)and Arduino. Here’s a simplified solution to get you started:

**Problem Statement:**

Design a smart water fountain that can be controlled remotely using a mobile app,and monitor water levels to ensure the fountain never runs dry.

**Solution:**

**Components Needed:**

1. Arduino board(e.g.,Arduino Uno or Arduino Nano)
2. Water pump
3. Water level sensor(e.g., ultrasonic sensor or float switch)
4. Relay module
5. Wi-Fi module(e.g., ESP8266)
6. Power supply for the pump
7. Tubing and a fountain head
8. Mobile app(Android or iOS)for remote control

**Steps to Implement:**

1. **Assemble the Hardware:**

* Connect the water pump to the relay module.
* Connect the water level sensor to the Arduino.
* Set up the tubing and fountain head in the desired location.

2. **Program the Arduino:**

* Write Arduino code to control the water pump through the relay module.
* Implement code to read water level data from the sensor.
* Use the Wi-Fi module to enable IoT capabilities, allowing the Arduino to connect to the internet.

3. **Set Up IoT Communication:**

* Choose an IoT platform(e.g., ThingSpeak, Blynk, or MQTT)and create an account.
* Configure the Arduino to send water level data to the chosen platform at regular intervals.

4. **Create a Mobile App:**

* Develop a mobile app(Android or iOS) that connects to the IoT platform and allow users to control the fountain remotely.
* The app should display real-time water level information and provide options to turn the fountain on/off.

5. **User Interface (UI):**

* Design a user-friendly interface for the app with buttons for controlling the fountain and a visual representation of the water level.

6.  **Remote Control:**

* Implement the logic in the app to send commands to the Arduino through the IoT platform.
* Ensure that users can start or stop the fountain with a simple tap on the app.

7. **Safety Measures:**

* Include fail-safes in your code to prevent the water pump from running dry, based on the water level sensor readings.
* Send notification to users when the water level is low or when the fountain is turned off due to low water.

8. **Testing and Deployment:**

* Test the entire system to ensure it works as expected.
* Deploy the water fountain in your desired location, ensuring it has a reliable Wi-Fi connection.

This solution provides a basic frame work for creating a smart water fountain using IoT and Arduino. Depending on your specific requirements and the complexity you want to add, you can enhance the system by including features like scheduling fountain operation or using additional sensors for environmental monitoring.