SMART WATER FOUNTAIN

A smart water fountain project is the practical application of coding and technology. Here's an idea of our project

PROJECT NAME:

Smart Water Fountain with IoT

PROJECT OVERVIEW:

In our project smart water fountain that can be controlled remotely using a smartphone app or a web interface. This project involves hardware components like a water pump, sensors, a microcontroller, and software coding to control and monitor the fountain's operation.

COMPONENTS REQUIRED FOR THE PROJECT:

1. Water pump

2. Microcontroller (Arduino)

3. Water level sensor

4. Temperature and humidity sensor

5. RGB LED strips

6. Smartphone app or web interface

PROJECT FEATURES:

1. **Remote Control:**

Developing a smartphone app or a web interface that allows users to turn the water fountain on/off and adjust its settings remotely.

2. **Automatic Mode**:

Implementing an automatic mode where the fountain can be scheduled to turn on and off at specific times of the day or triggered by environmental factors (e.g., temperature, humidity).

3. **Water Level Monitoring:**

Using a water level sensor to monitor the fountain's water level. If the water level gets too low, send an alert to the user's smartphone and stop the pump to prevent damage.

4. **Environmental Sensing**:

Incorporating temperature and humidity sensors to collect environmental data. You can use this data to adjust the fountain's operation based on weather conditions.

5. **LED Lighting**:

Adding   LED strips to create captivating lighting effects. Users should be able to change the colors and patterns via the app or interface.

6. **Data Logging**:

Recording data on water usage, environmental conditions, and fountain operation for future analysis. This data can be displayed on the app or web interface.

CODING TASK:

1. **Microcontroller Programming:**
Writing code for the microcontroller to control the water pump, read sensor data, and communicate with the user interface.

2. **User Interface Development**:
Creating a web interface that communicates with the microcontroller over Wi-Fi or Bluetooth to send commands and receive data.

3. **Data visualization**:
Developing graphs or charts to visualize data collected from the sensors, allowing users to monitor environmental conditions and fountain usage patterns.

4. **User Authentication and Security**:
Implementing user authentication and security measures to protect the control interface from unauthorized access.

5. **Notifications**:
Setting up push notifications to alert users of important events, such as low water levels or scheduled fountain activations.

6.**Scheduling**:

Writing code for scheduling fountain operations based on user-defined settings.