

# Smart water fountain

Developing a smart water fountain involves integrating sensors, connectivity, and automation. Here are some key steps to get started:

1. Define Objectives: Determine the purpose of your smart water fountain. Is it for pet care, decorative purposes, or something else?

2. Select Components: Choose appropriate sensors (e.g., water level, quality), a pump, microcontroller (e.g., Arduino, Raspberry Pi), and connectivity options (Wi-Fi, Bluetooth, IoT protocols).

3. Design the Fountain: Create a design for the fountain, considering aesthetics, size, and material.

4. Sensor Integration: Incorporate sensors to monitor water level, quality, and other parameters.

5. Microcontroller Programming: Write code to control the pump, read sensor data, and make decisions based on the data.

6. Connectivity: If desired, connect the fountain to the internet for remote monitoring and control.

7. User Interface: Develop a mobile app or web interface for users to interact with the fountain.

8. Automation: Implement automation features, such as refilling the fountain or adjusting water flow based on sensor readings.

9. Power Supply: Ensure a reliable power source for continuous operation.

10. Testing: Thoroughly test the system to ensure it functions as intended.

11. Safety: Implement safety features, such as overflow protection and emergency shutdown.

12.Documentation: Document the design, code, and setup for future reference

```
Miimport RPi.GPIO as GPIO
```

```
Import time
```

```
# Define the GPIO pins for the water pump and water level sensor
```

```
Water_pump_pin = 17
```

```
Water_level_sensor_pin = 18
```

```
# Set up GPIO mode
```

```
GPIO.setmode(GPIO.BCM)
```

```
GPIO.setup(water_pump_pin, GPIO.OUT)
```

```
GPIO.setup(water_level_sensor_pin, GPIO.IN)
```

```
# Function to control the water pump
```

```
Def control_water_pump():
```

```
    # Check the water level sensor
```

```
    If GPIO.input(water_level_sensor_pin) ==  
GPIO.LOW:
```

```
Print("Water level is low. Turning on the  
water pump.")
```

```
GPIO.output(water_pump_pin, GPIO.HIGH)
```

```
Else:
```

```
Print("Water level is sufficient. Turning off  
the water pump.")
```

```
GPIO.output(water_pump_pin, GPIO.LOW)
```

```
Try:
```

```
While
```

```
Control_water_pump()
```

```
Time.sleep(1) # Check the water level and  
control the pump every 1 second
```

```
Except KeyboardInterrupt:
```

```
GPIO.cleanup()
```