

SMART WATER MANAGEMENT

USING IOT

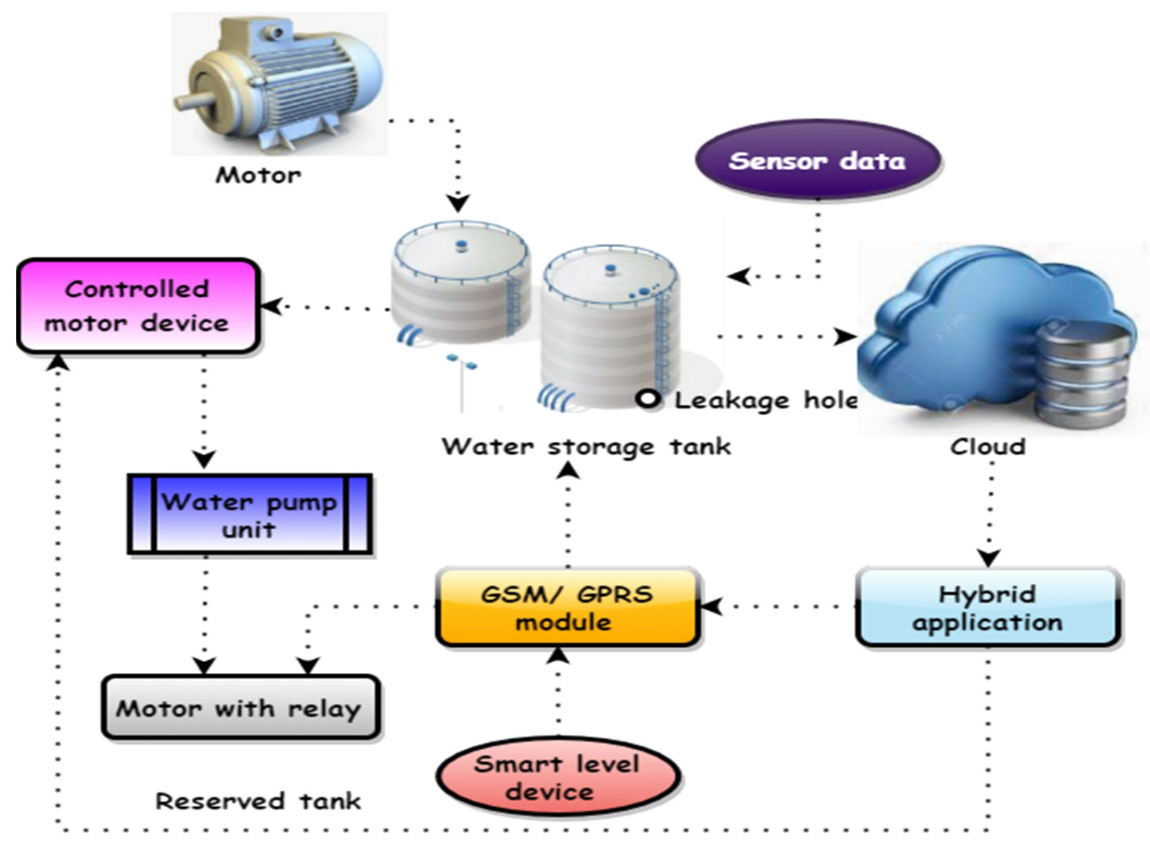


DEVELOPMENT PART 2 :

Introduction:

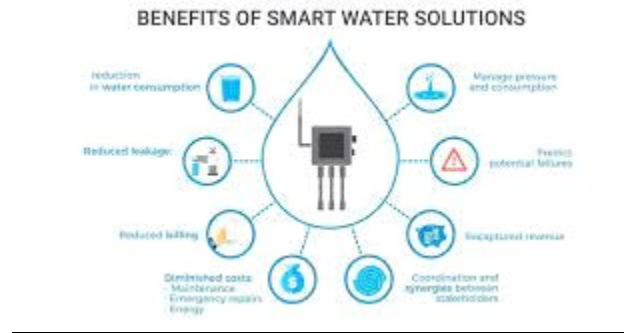
Smart water management involves the intelligent planning, monitoring, and optimization of water-related processes to ensure the efficient and sustainable use of this precious resource. It plays a pivotal role in environmental conservation, addressing water scarcity issues, and enhancing overall water quality. The integration of technology, data analytics, and proactive strategies is key to achieving smart water management goal

BLOCK DIAGRAM :



Defining Project Requirements:

Begin by clearly defining the objectives of your Smart Water Management project. What specific data are you looking to collect and analyze? What problems are you trying to solve? Understanding your project's goals is essential



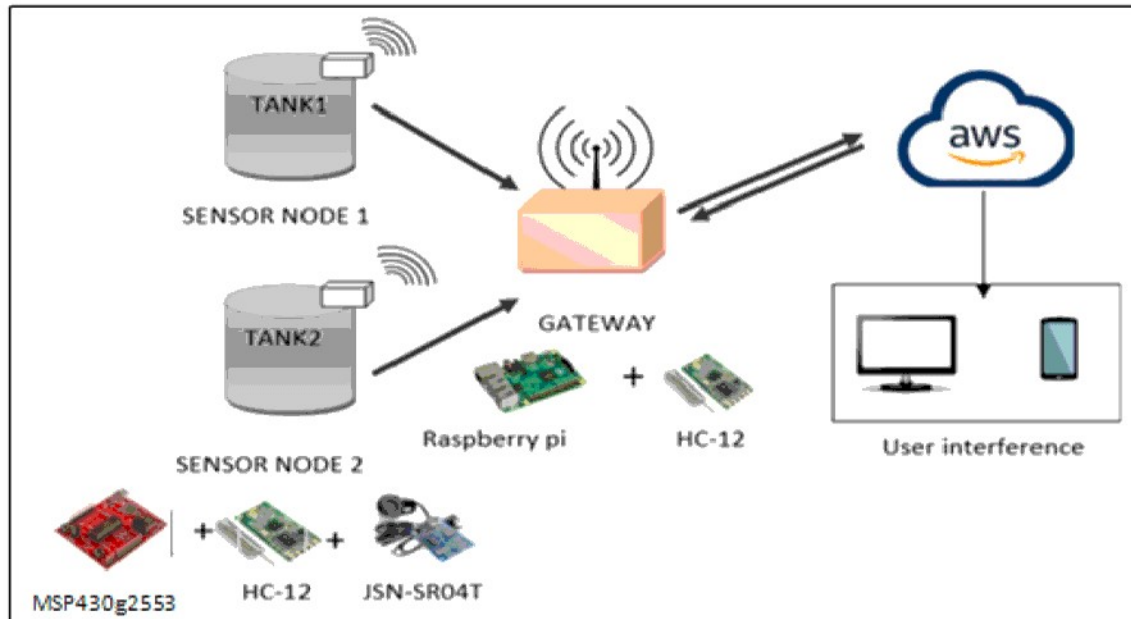
IoT Device Deployment:

Choose the appropriate IoT devices for your project. These devices should be capable of collecting, processing, and transmitting data to a central server or cloud platform.



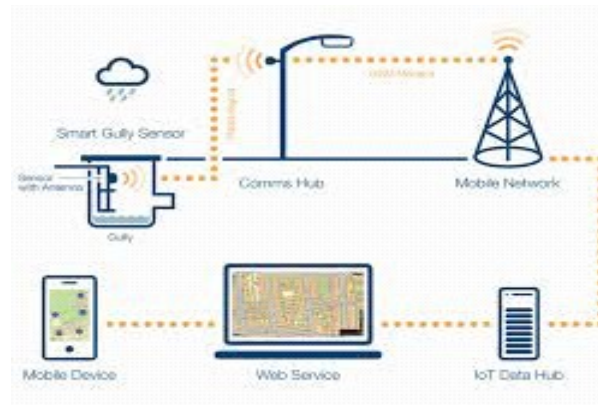
Data Analysis and Visualization:

Set up a data analysis platform that can receive data from your IoT devices and perform relevant analyses. Tools like Python libraries (e.g., Pandas, Matplotlib, Seaborn) can be used for data analysis and visualization.



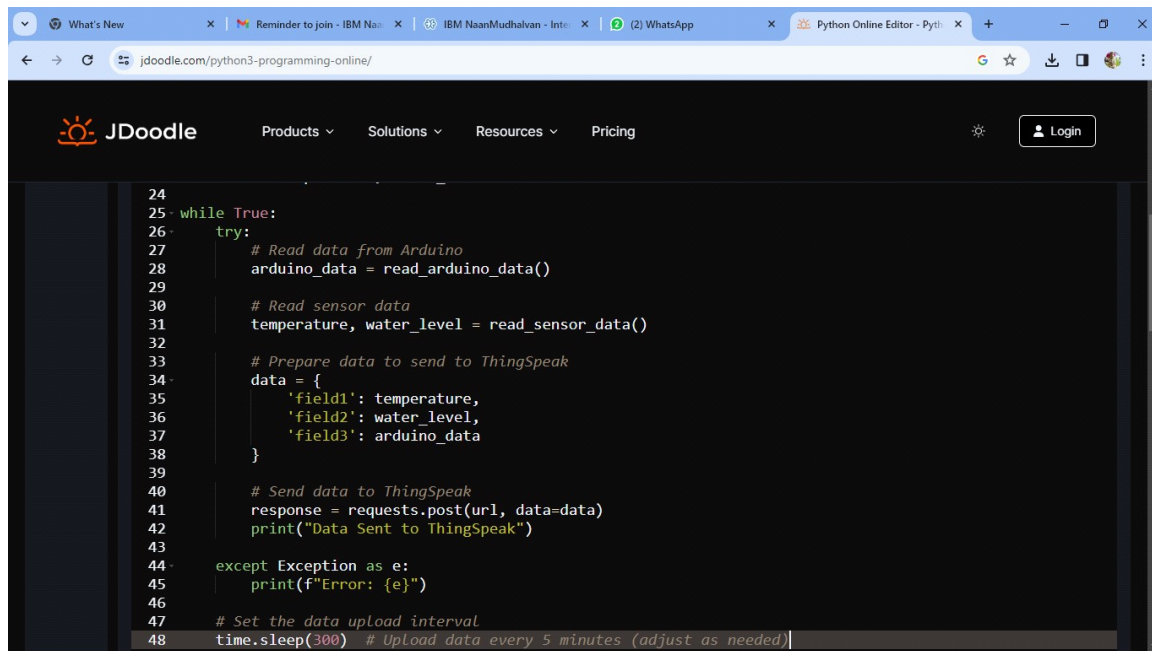
Remote Monitoring and Alerts:

Implement remote monitoring and alerting systems to notify relevant stakeholders when specific water parameters go beyond predefined thresholds. This can be done through emails, SMS, or mobile apps.



PYTHON PROGRAM :

```
1 import serial
2 import time
3 import requests
4 import random
5
6 # Define your ThingSpeak API key and channel URL
7 api_key = "G1RSE98QHVUFT626"
8 url = f"https://api.thingspeak.com/update?api_key={api_key}"
9
10 # Initialize the serial connection to Arduino
11 arduino_port = '/dev/ttyACM0' # Update with your Arduino's port
12 ser = serial.Serial(arduino_port, 9600)
13
14 # Function to read data from Arduino
15 def read_arduino_data():
16     data = ser.readline().decode().strip()
17     return data
18
19 # Simulated sensor data (replace with actual sensor readings)
20 def read_sensor_data():
21     temperature = random.uniform(20.0, 30.0)
22     water_level = random.uniform(0, 100)
23     return temperature, water_level
```

```
24
25 while True:
26     try:
27         # Read data from Arduino
28         arduino_data = read_arduino_data()
29
30         # Read sensor data
31         temperature, water_level = read_sensor_data()
32
33         # Prepare data to send to ThingSpeak
34         data = {
35             'field1': temperature,
36             'field2': water_level,
37             'field3': arduino_data
38         }
39
40         # Send data to ThingSpeak
41         response = requests.post(url, data=data)
42         print("Data Sent to ThingSpeak")
43
44     except Exception as e:
45         print(f"Error: {e}")
46
47     # Set the data upload interval
48     time.sleep(300) # Upload data every 5 minutes (adjust as needed)
```

OUTPUT :

Dear user, need your attention here. The water tanks will be filled in 5450 seconds



You can turn off the water motor by the following ways:



Direct API Request:

<https://bit.ly/3ghdLbI>



Cloud Dashboard:

<https://bit.ly/3AWkBLI>



Dedicated Web Application:

<https://wheels4water.me>

You can use any of the methods as per your convenience and in case you forgot to switch it off, it will be done on my own.

Save Water & i



2:36 PM