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**: B.Tech -Artificial Intelligence and Data Science**

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**: Smart Water System**

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**Project Title:** Smart Water System

**Phase 3:** Development Part 1

# Configuring the IoT Sensors:

Install the sensors in public places where we want to monitor water consumption. Ensuring that they are securely mounted and connected to a power source if required.

# Suitable Flow Meters:

* Select appropriate flow meters based on flow rate, accuracy, and compatibility.
* Consider types like ultrasonic, electromagnetic, or turbine meters.
* Ensure the selected meters meet your project requirements.

# Install Flow Meters:

* Install meters in desired public places, ensuring proper connections.
* Professional installation may be necessary for accuracy and compliance.
* Securely mount meters to prevent tampering or damage.

# Calibrate Flow Meters:

* Calibrate meters for precise measurements using reference standards.
* Adjust settings to match actual flow rates accurately.
* Regular calibration ensures consistent and reliable data.

# Configure Sensor Parameters:

* Access meter settings and adjust parameters, e.g., sampling rate, units.
* Tailor configurations to project-specific requirement
* Confirm parameters align with your desired data output.

# Power Supply:

* Provide stable power sources for meters, either battery or continuous.
* Ensure power supply reliability to prevent data loss.
* Battery-powered meters may require periodic battery replacement.

# Data Output Format:

* Determine the format of data output, digital or analog.
* Prepare necessary adapters to interface with IoT sensors.
* Ensure compatibility with your data-sharing platform.

# Data Transmission Protocol:

* Choose a suitable communication protocol for data transmission.
* Popular options include MQTT, HTTP, or LoRaWAN.
* Match the protocol with your IoT platform's requirements.

# Integration with Data-Sharing Platform:

* Integrate flow meters with your selected data-sharing platform.
* Configure the platform to receive and process data from sensors.
* Provide the necessary sensor identification and communication details.

# Testing and Validation:

* Conduct thorough tests to verify meter accuracy.
* Compare sensor data with manual measurements for validation.
* Address any discrepancies to ensure data reliability.

# Remote Monitoring and Maintenance:

* Set up remote monitoring for real-time performance tracking.
* Enable alerts for sensor malfunctions or irregular data.
* Maintain a robust system for long-term reliability.

# Python Script:

Timport time import requests import json

# Replace with your own credentials API\_KEY = "your\_api\_key" DEVICE\_ID = "your\_device\_id"

# Replace with the URL of your data-sharing platform DATA\_SHARING\_PLATFORM\_URL = "https://your-data-sharing- platform.com/api/v1/data"

# Function to simulate reading from a water consumption sensor def read\_water\_consumption():

# Simulate reading from a sensor

return 100 # 100 units of water consumption

# Function to send data to the data-sharing platform def send\_data\_to\_platform(data):

headers = {

"Content-Type": "application/json", "Authorization": f"Bearer {API\_KEY}"

}

response = requests.post(DATA\_SHARING\_PLATFORM\_URL, headers=headers, data=json.dumps(data))

if response.status\_code == 200: print("Data sent successfully")

else:

print(f"Failed to send data: {response.text}") # Main loop

while True:

# Read water consumption data water\_consumption = read\_water\_consumption()

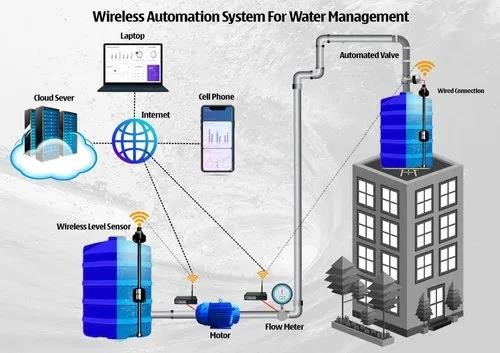
# Prepare data to be sent data = {

"device\_id": DEVICE\_ID, "water\_consumption": water\_consumption, "timestamp": int(time.time())

}

# Send data to the data-sharing platform send\_data\_to\_platform(data)

# Wait for some time before reading the sensor again time.sleep(60) # 1 minute



# Conclusion :

It emphasizes critical factors such as security, scalability, and data insights. Ensuring regulatory compliance, user-friendly reporting, and robust maintenance are vital for long-term success. This project holds the potential to enhance water resource management and contribute to sustainability in public places.