IOT BASED SMART WATER MANAGEMENT

Phase 3: DEVELOPMENT PART

1. Project Planning:

Define Objectives:

Determine what you want to achieve with the smart water management system. It could be efficient water usage, leak detection, or water quality monitoring.

Target Audience:

Identify the end users and stakeholders for the system, such as homeowners, municipalities, or industries.

Features:

List down the features you want in the system, like real-time monitoring, alerts, or data analytics.

2. Hardware Selection:

Sensors:

Choose appropriate sensors for measuring water flow, quality, pressure, and other parameters.

Sensors could include flow meters, pH sensors, pressure sensors, etc.

Microcontroller:

Select a microcontroller (e.g., Arduino, Raspberry pi) to process data from sensors and control actuators.

Connectivity:

Decide on communication protocols (Wi-Fi, Bluetooth, LoRa, etc.) for connecting sensors and actuators to the central system.

3. Software development:

Data Processing:

Develop code to read data from sensors, process it, and store it in a database or cloud platform.

User Interface:

Create a user-friendly interface for users to monitor water usage, receive alerts, and control the system remotely.

Data Analytics:

Implement algorithms for analyzing water usage patterns and predicting potential issues.

4. Connectivity and Networking:

Internet of Thinks (IoT) Platform:

Choose an IoT platform for managing devices, data, and security.

5. Integration and Testing:

Integration:

Integrate hardware components with the software system and ensure they communicate effectively.

Testing:

Conduct rigorous testing, including unit testing, integration testing, and user acceptance testing, to identify and fix bugs.

6. Deployment and Maintenance:

Deployment:

Deploy the system in the target environment and ensure all components work seamlessly.

Maintenance:

Establish a maintenance plan for regular update, bug fixes, and hardware maintenance.

7. Data Analysis and Optimization:

Data Analysis:

Analyze collected data to gain insights into water usage patterns and identify areas for optimization.

Optimization:

Use the insights to optimize water distribution, detect leaks, and improve overall efficiency.