



VELAMMAL
INSTITUTE OF TECHNOLOGY

Approved by AICTE - New Delhi
Affiliated to Anna University - Chennai
Accredited by NBA & NAAC

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Project name : Smart Water Management

Team name : Proj_224784_Team_3

Team members :

1. KISHAN KANTH DS(113321104302)
2. GOWTHAMCHANDRAN J(113321104301)
3. YUVARAJ K(113321104119)

INNOVATION

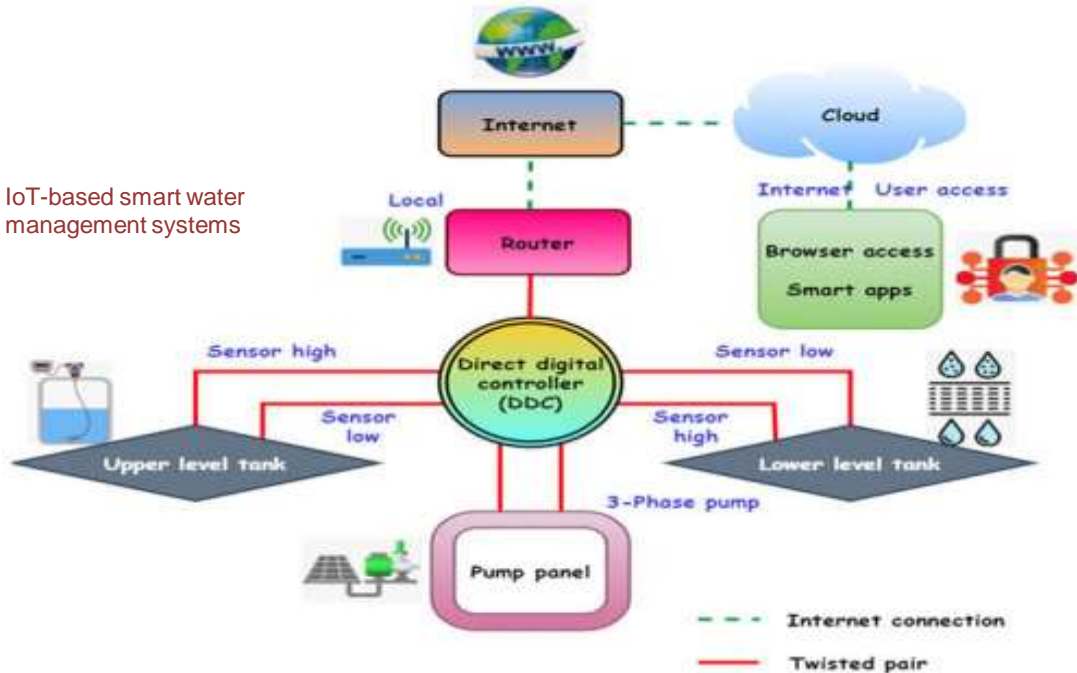
- **IoT-enabled Water Sensors:** Utilize IoT sensors for real-time monitoring of water usage, quality, and leak detection, providing actionable insights for efficient water management.
- **Data Analytics and AI:** Apply AI and data analytics to process data from sensors, predicting water demand, optimizing distribution, and identifying leakages for proactive interventions.
- **Smart Metering and Billing:** Implement smart water meters for real-time consumption data, enabling accurate billing, promoting water conservation, and detecting anomalies like leaks.
- **Water Recycling and Reuse Systems:** Invest in advanced water treatment tech for efficient recycling and reuse of treated wastewater, minimizing strain on freshwater resources.
- **Mobile Applications for Water Management:** Develop user-friendly mobile apps allowing consumers to monitor water usage, set conservation goals, and receive alerts, promoting awareness and responsible water usage.

PROJECT OBJECTIVES

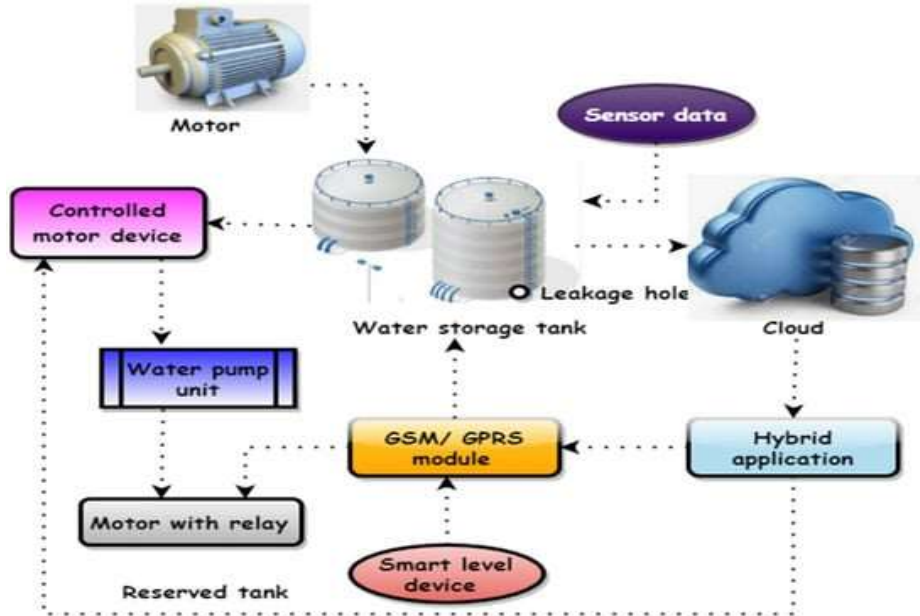
- **Implement IoT-enabled Water Monitoring:** Deploy IoT sensors and devices to monitor water usage, quality, and detect leaks, aiming to enhance real-time data collection and analysis for effective water management.
- **Integrate Data Analytics and AI Algorithms:** Integrate data analytics and AI algorithms to process sensor data, predict water demand, optimize distribution, and proactively identify and address leakages and inefficiencies in the water system.
- **Upgrade to Smart Metering and Billing System:** Upgrade the existing water metering system to smart meters, enabling real-time consumption tracking, accurate billing, leak detection, and encouraging water conservation among consumers.
- **Implement Water Recycling and Reuse Technologies:** Implement advanced water treatment technologies to efficiently recycle and reuse treated wastewater, promoting sustainable water usage and reducing strain on freshwater resources.
- **Develop User-Friendly Water Management App:** Develop an intuitive mobile application to empower consumers to monitor their water usage, set conservation goals, receive alerts for anomalies, and promote awareness and responsible water consumption.

VIRTUALIZATION DIAGRAM ON IoT

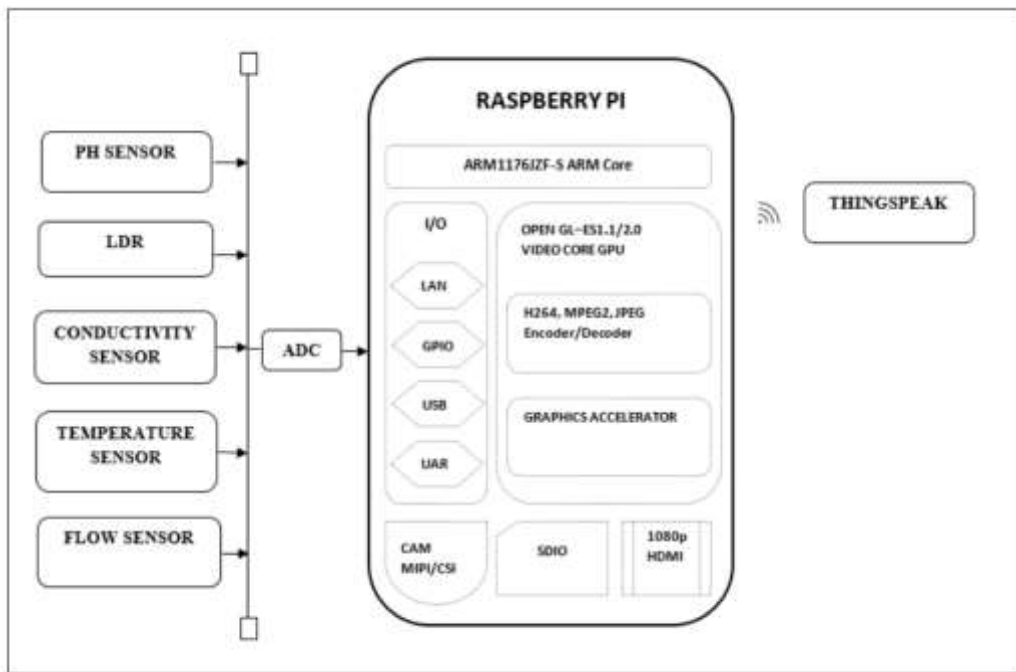
IoT-based smart water management systems



Smart water tank using IOT



RASPBERRY PI INTEGRATION



CODE IMPLEMENTATION

Hardware Components:

1. Raspberry Pi (or similar single-board computer)
2. Water Flow Sensor
3. Solenoid Valve (for controlling water flow)
4. Wi-Fi Module (for internet connectivity)
5. Power Supply

Software Components:

1. Python (for programming)
2. MQTT (for communication)
3. Cloud server (for data storage and remote control)

CONCLUSION

- In conclusion, this project leverages IoT, data analytics, and AI for efficient water management. Smart metering enhances billing accuracy and promotes water conservation. Integration of water recycling and a user-friendly app empower sustainable water usage, marking a step towards a water-secure future.
- In summary, the project's innovations optimize water distribution, detect leaks, and encourage responsible consumption. Water recycling minimizes strain on freshwater sources, aligning with environmental sustainability goals. The mobile app fosters awareness, shaping a more conscious approach to water usage and contributing to a sustainable and efficient water management system.



THANK YOU

