

SMART WATER MANAGEMENT

PHASE 2
INNOVATION



TITLE

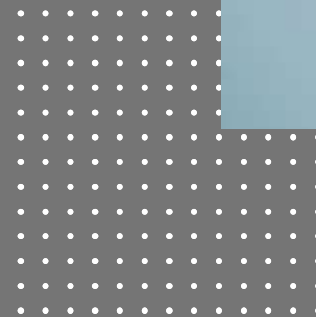
Technologies

Benefits

Innovations

Components

Conclusion



Introduction



○In recent years, innovation in water technologies based on the Internet of Things (IoT) has emerged as a transformative force in the field of water management and conservation.

○IoT-driven solutions have revolutionized the way we monitor, manage, and conserve this precious resource.

○This introduction will explore the exciting developments in this field and their profound impact on water sustainability, efficiency, and quality.



TECHNOLOGIES

- Water technologies based on IoT encompass a wide range of solutions and innovations aimed at managing, conserving, purifying, and distributing water resources efficiently.
- Some key technologies of water technologies based on IoT include:



Greywater

○ Greywater recycling based on IoT (Internet of Things) involves using sensors, automation, and data analytics to efficiently collect, treat, and reuse greywater (wastewater from sinks, showers, and laundry) in a sustainable manner.

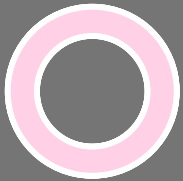
○ Implementing greywater recycling with IoT requires careful design, integration, and adherence to local regulations and water quality standards. It can contribute to more sustainable and efficient water use in residential, commercial, and industrial settings.

Smart water meters

- Smart water meters based on IoT (Internet of Things) technology are designed to provide more accurate and efficient monitoring and management of water consumption.

- smart water meters based on IoT technology offer numerous benefits, including improved accuracy, efficiency, conservation, and cost savings for both utility providers and consumers.

- They play a crucial role in modernizing water management and ensuring the sustainable use of this essential resource.

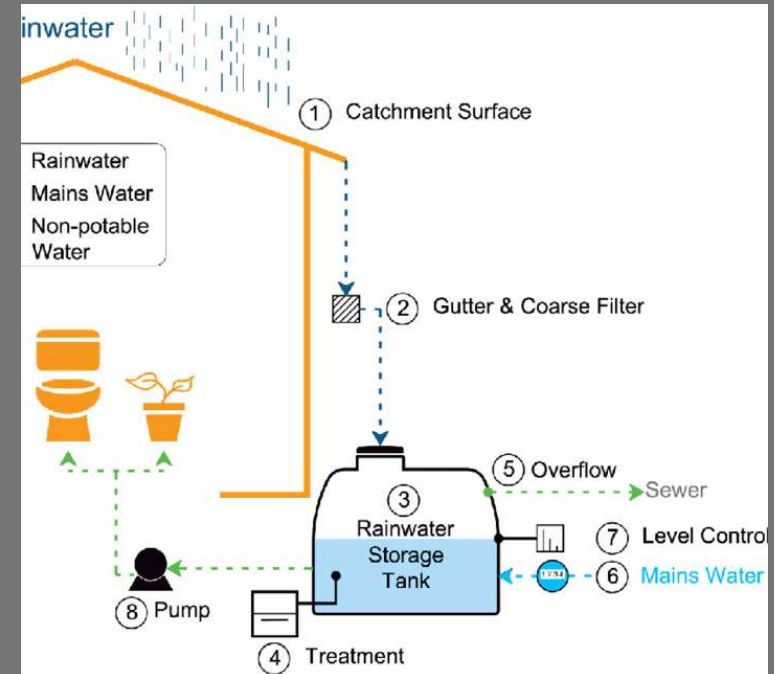


Smart leakage detection

- Smart Leakage Detection based on IoT refers to a system that uses Internet of Things (IoT) technology to monitor and detect leaks or abnormal water flow in various applications, such as plumbing systems, pipelines, or industrial processes.
- This system typically involves the deployment of sensors and devices that can collect real-time data on water usage, pressure, and flow.
- When anomalies or leaks are detected, the system can immediately send alerts or notifications to relevant parties, allowing for quick identification and response to potential water-related issues.
- This technology aims to prevent water wastage, reduce damage, and improve overall water management efficiency

Benefits of greywater recycling with IoT:

- Water Conservation: Greywater recycling reduces freshwater consumption for non-potable applications, conserving a valuable resource.
- Cost Savings: By reusing greywater, users can reduce their water bills and operational costs.
- Sustainability: It promotes sustainable water management practices and reduces the environmental impact of wastewater disposal.
- Automation: IoT enables automated control and remote monitoring, ensuring efficient greywater treatment and distribution.





Benefits of Smart water meter

- Consumer Engagement: Smart water meters can empower consumers with information about their water usage, encouraging more responsible consumption and environmental awareness.
- Environmental Benefits: By reducing water waste, smart meters contribute to environmental conservation by conserving precious resources.
- Accurate Billing: With precise consumption data, billing becomes more accurate, reducing disputes and ensuring that consumers pay only for the water they use.
- Real-time Monitoring: IoT-enabled smart water meters provide real-time data on water consumption, allowing consumers and utility companies to monitor usage patterns and detect leaks promptly.



Benefits of Smart water leakage

- Early Detection: IoT sensors can detect leaks in real-time or even before they become significant issues, allowing for prompt action to prevent water damage or loss.
- Reduced Water Waste: By identifying leaks promptly, water conservation is promoted, saving both water resources and money on utility bills.
- Data Insights: These systems collect and analyze data over time, providing insights into water usage patterns, helping users make informed decisions about conservation and optimization



Hardware components



Water Sensors:

- These sensors can detect the presence of water and moisture.
- They come in various forms, such as water leak detectors, moisture sensors, or flood sensors.



Microcontrollers:

- IoT devices often use microcontrollers (e.g., Arduino, Raspberry Pi) to process sensor data, make decisions, and control other components.



Power Source:

- Depending on the application, devices can be powered by batteries, solar panels, or wired power sources. Battery-powered devices may need low-power components to conserve energy.



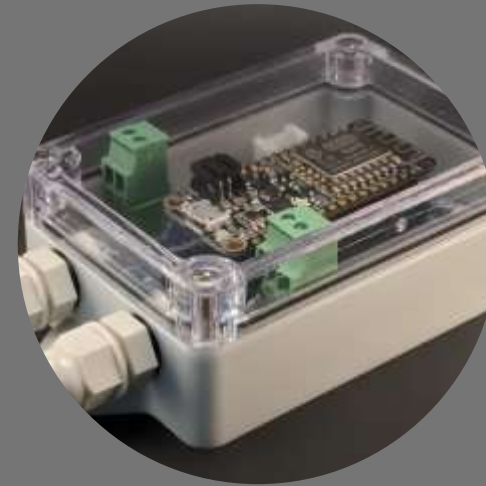
Alarms and Notifications:

- Devices may include speakers, LEDs, or other indicators to provide immediate alerts on-site. Notifications can also be sent via email, SMS, or push notifications to inform users of detected leaks



Additional Sensors:

○ Depending on the specific use case, additional sensors like temperature sensors, humidity sensors, or even cameras may be integrated to provide more context or detect related issues.



Enclosures:

○ To protect the hardware from environmental factors, waterproof and weather-resistant enclosures may be used, especially for outdoor installations.

Software components



Cloud Platform:

- Data is typically sent to a cloud-based platform for storage, analysis, and remote access. Services like AWS IoT, Google Cloud IoT, or Microsoft Azure IoT can be used for this purpose.



User Interface:

- Users access and monitor the data through a web or mobile application. These interfaces allow users to receive alerts and visualize data



Central Hub or Gateway:

In many cases, data from multiple sensors is sent to a central hub or gateway device that aggregates and forwards the data to a cloud platform or user interface.



Conclusion

- In conclusion, smart water management innovations leveraging IoT technology offer a promising solution to address water conservation and efficiency challenges.
- By continuously monitoring and optimizing water usage, these systems can help conserve valuable resources and improve overall sustainability.

THANK YOU

