IOT Based Water Leakage Monitor

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Abstract

The IoT-based water leakage monitoring system aims to detect water leaks in real-time, reducing water wastage and preventing potential damage to property. This system integrates sensors with IoT technology to continuously monitor areas prone to leakage, such as bathrooms, kitchens, pipelines, and basements. Upon detecting a leak, the system sends instant alerts to the user through a smartphone app or SMS, enabling prompt action. This solution is ideal for residential, commercial, and industrial applications, offering a cost-effective approach to water management and conservation.

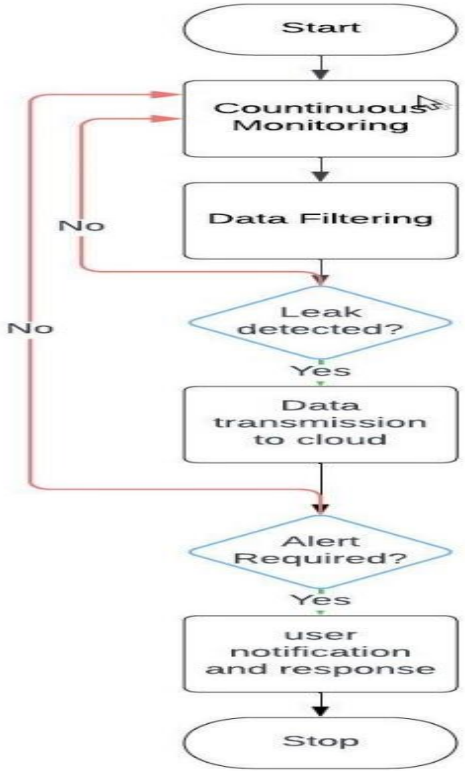
Objectives:

Leak Detection: To accurately detect water leaks in various environments and notify users in real-time.
Water Conservation: To minimize water wastage by enabling quick responses to leaks.
Damage Prevention: To reduce the risk of property damage caused by undetected leaks.
User Alerts: To provide instant notifications to users via smartphones, ensuring timely intervention.
Data Logging: To maintain a log of leakage events for future analysis and maintenance planning.
Scalability: To create a scalable system that can be easily deployed in homes, offices, and large industrial settings

Components Required:

@ **Sensors:**1.Water Leak Sensor
@ **Processor:** Arduino
@ **Connectivity Modules:** 1. WiFi Module, 2.Bluetooth Module, 3. GSM Module
@ **Cloud Platform:** Google Firebase
@ **Power Supply:** 1.Battery Pack, 2.Power Adapter
@ **Software Components:** 1.C and Python Program, 2.Web Dashboard

Flow Diagram:



Implementation:

(Hardware or software)

Hardware:

Micro controller: Manage operations

Sensor: For detecting leakage of water

Connective Modules: For internet connectivity and to send SMS alerts.

Power Supply: For stationary setups, use a power adapter for continuous operation.

Software:

Embedded Programming: C programming

Cloud Integration : Google Firebase

User Interface: Mobile App to show real time sensor data and SMS alerts to notify users of leaks.