SMART WATER SYSTEM

PROBLEM DEFINITION

➔ Implementing IoT sensors to monitor water consumption in public places such as parks and gardens.

Objective :

◆ To promote water conservation by making real-time water consumption data publicly available.
◆ To get better understanding of the daily cycles of water demand
◆ To produce more resilient and effective water supply system, reducing cost and improving sustainability

IOT SENSORS REQUIRED

➔ **FLOW SENSOR** – helps in detecting leaks and monitoring water consumption

➔ **WATER PRESSURE SENSOR** – to detect abnormal pressure drops

➔ **WATER LEAK SENSORS** – to detect presence of water and send alerts to prevent water damage

➔ **WATER QUALITY SENSORS** – to measure parameters like pH, turbidity, temperature and presence of contaminants

IOT DESIGN THINKING

SENSORS

Flow Sensor

Water Quality
Sensor

Water Leak
Sensor

ESP32
Microcontroller

Public App
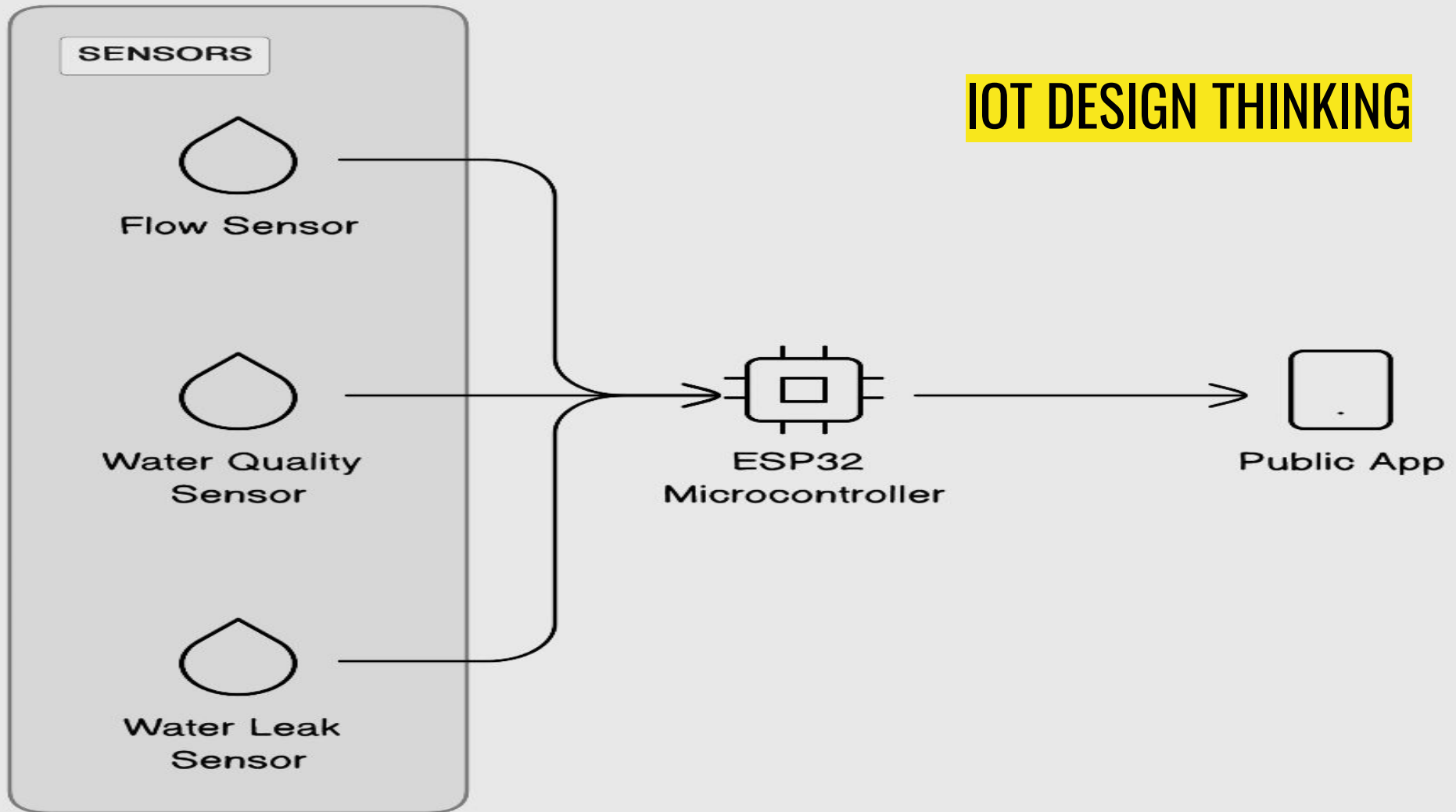
REAL TIME TRANSIT INFORMATION PLATFORM

ESP32 FIRMWARE – to read sensor data at regular intervals

WiFi Connectivity – configure ESP32 to connect to your local WiFi network

Data Collection – Collect data from sensors and store it in variables

Data Transmission – Transmit the data to cloud server or local server using HTTP

App Development – to visalise collected data

Real Time updates – to provide users with live information about water consumption and quality

Notifications – to alert users incase of water leaks or poor water quality

Integration Approach

- Water Flow Sensor, Water leak Sensor and Water quality sensors are connected to ESP32 Microcontroller, where these sensors typically have a digital output that can be read by ESP32
- ESP32 provides WiFi capabilities where the collected data can be transmitted to the cloud sever or local server
- With the help of an App these saved datas can be collected in regular intervals to monitor the water consumption, water leaks and water quality in real time to Conserve Water for Sustainability