Intelligent Water Distribution & Monitoring System

Abstract: Nowadays, most of the authorities in urban or metro cities facing to control the consumption of water by each house. There is no exact solution to resolve this issue. But, with rapid advancement in Internet of Things(IoT), this issue will be tackled an easy way. This project design of a prototype system for real-time monitoring of water quantity using the Internet of things. First, collected the water consumed by each house and then generate the bill based on their utility. Here, using IBM Watson Studion design the solution to this problem.

Motivation: The project Intelligent water distribution system, as the name says it is all about management of water supply throughout the scale, right from small societies, townships to entire urban infrastructure and also for irrigation water supply management. Main task of the water distribution system is to maintain the water in the tank and also generate the water bills to the individual households which involves human efforts. This system can be automated using the Internet of things.

Objectives:
1. Understand the IBM Watson frame work for AI,ML and IoT.
2. Cerate the web app using NOdered and Cloudant database .
3. Retrieve the sensor values form Cloudant database and generate the bill for each house.

Design Methodology:
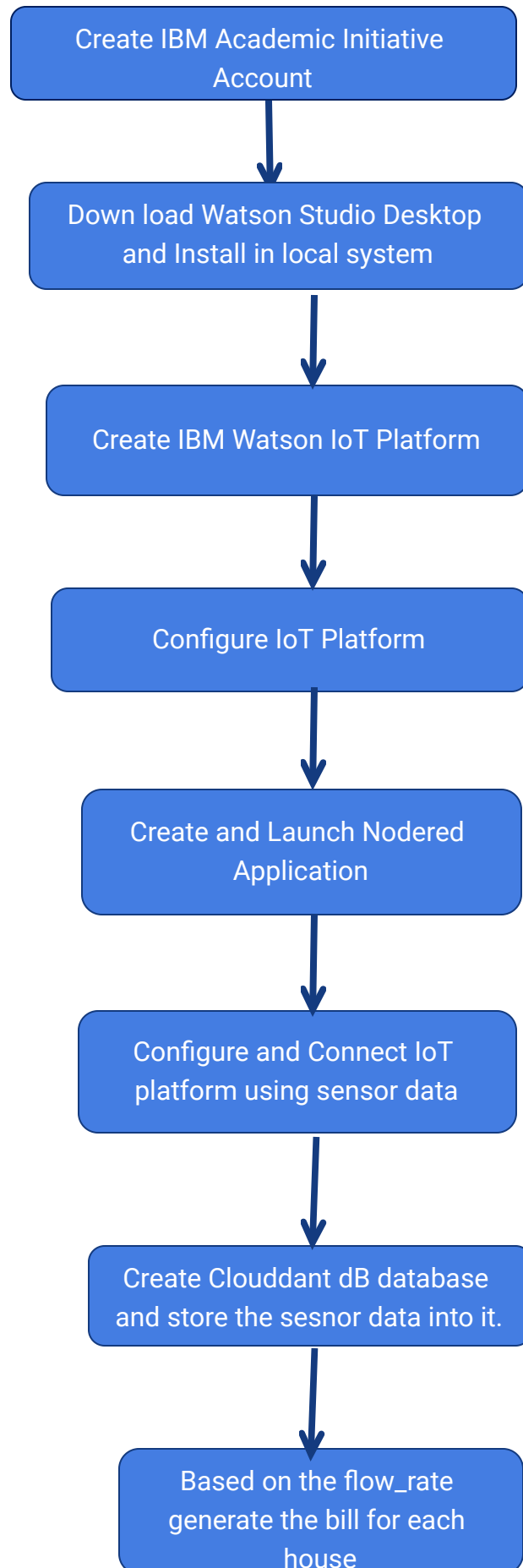1. Main tank water level and Water flow to individual houses is continuously updated to IBM IoT platform (Use Online simulator sensor for water flow and water level)
2. Create a Node-RED flow to get the data from IBM IoT platform and store it in cloudant DB.
3. Display the tank water level in the UI
4. Retrieve the flowrate of individual houses and generate bills and display them in UI.

Block Diagram:

Design Flow:

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┌─────────────────────────────┐
│  Create IBM Academic         │
│  Initiative Account          │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Down load Watson Studio     │
│  Desktop and Install in      │
│  local system                │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Create IBM Watson IoT       │
│  Platform                    │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Configure IoT Platform      │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Create and Launch Nodered   │
│  Application                 │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Configure and Connect IoT   │
│  platform using sensor data  │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Create Clouddant dB         │
│  database and store the      │
│  sesnor data into it.        │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  Based on the flow_rate      │
│  generate the bill for each  │
│  house                       │
└─────────────────────────────┘
```
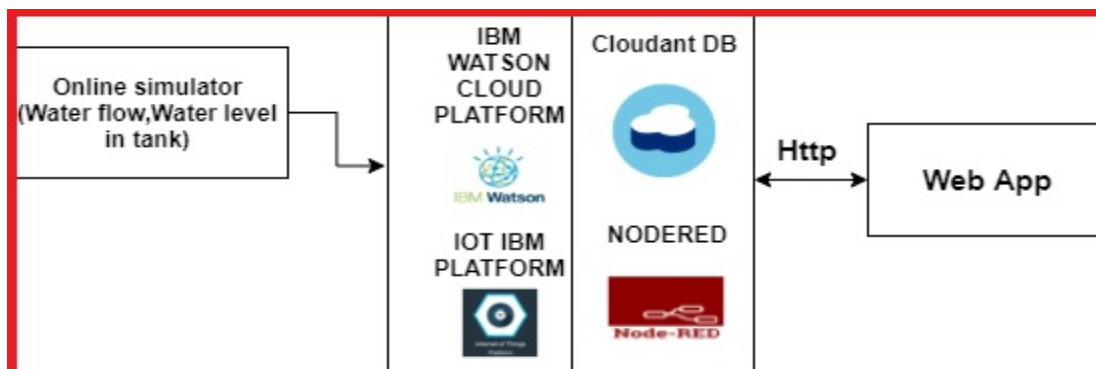
Conclusion:

Using IBM Watson IoT platform designed the prototype of intellogent monitoring of water consumption of each house and geerated the bill.