<mark>**Project Title:Intelligent Water Distribution & Monitoring System**</mark>

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1. INTRODUCTION

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.

1.1 Overview
   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.

1.2 Purpose:
   The purpose of this system is to automate the water distribution and monitoring system through IoT Platofrm.

2. LITERATURE SURVEY

2.1 Existing System

In this survey, we look at the need of IoT in smart water system. In the first step, a basic architecture is selected and applied in WDS by analysing and comparing different technologies, equipment, cost and methods to build a smart water system. It reveals the need for an IoT architecture with technologies combined for water distribution system. It also takes into account of its advantages and disadvantages based on the literature review. The selection of the best choice can be identified for smart water system at the end of this step. The next step involves selection of the parameters required using IoT for water distribution. At this step, the current issues during the selection of parameters and some suitable suggestions are provided. Finally, an overview of the benefits which is necessary to implement IoT in smart water system is discussed

2.1 Proposed solution
   The proposed system should continuously monitor the main tank water level and should automatically switch on/off the motors according to the tank water level and alert the admins.it should monitor the water flow of the individual houses and store the flow rate of each in the Cloudant DB to generate the water bills. Tank water level and the bills should be visualized in the dashboard so that the Admin can monitor them.
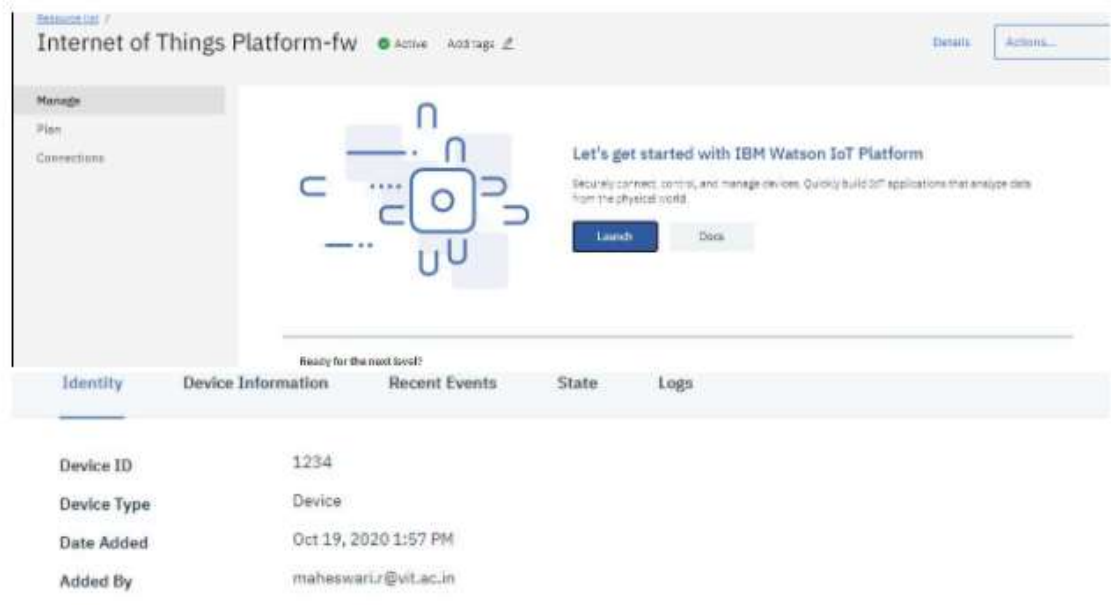
3. THEORITICAL ANALYSIS

3.1 Proposed Technical Architecture (Block diagram)
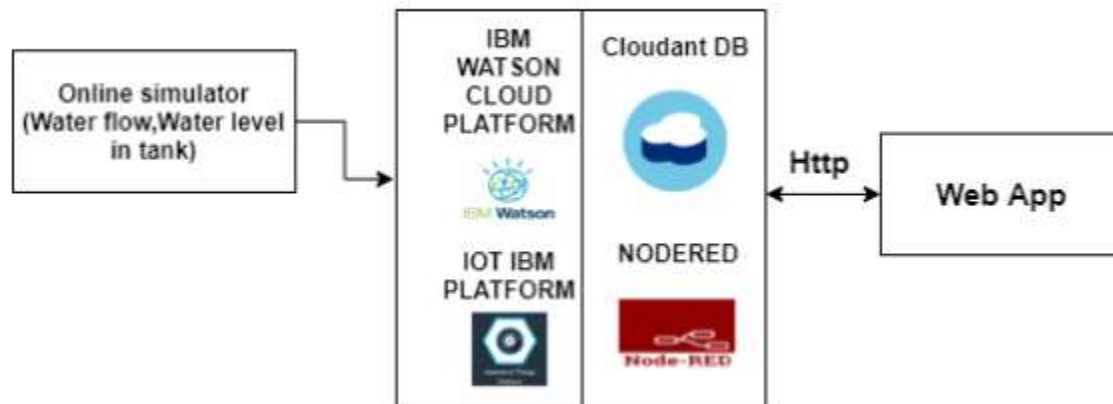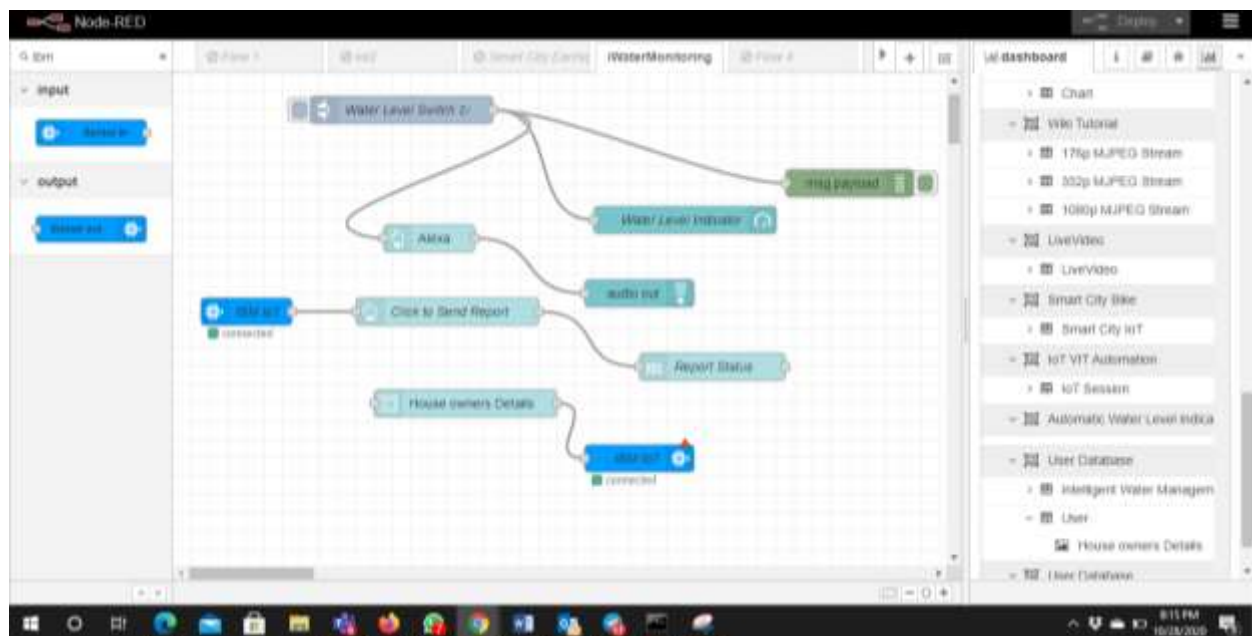

4. EXPERIMENTAL INVESTIGATIONS

Solution :Project Report

1. **IBM IoT Platform and device setup**

2. Nodered set up configuration

3. Creation of Node red flow

4. **FLOWCHART**

Project Flow:
- 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)
- Create a Node-RED flow to get the data from IBM IoT platform and store it in cloudant DB.
- Display the tank water level in the UI
- Retrieve the flowrate of individual houses and generate bills and display them in UI.
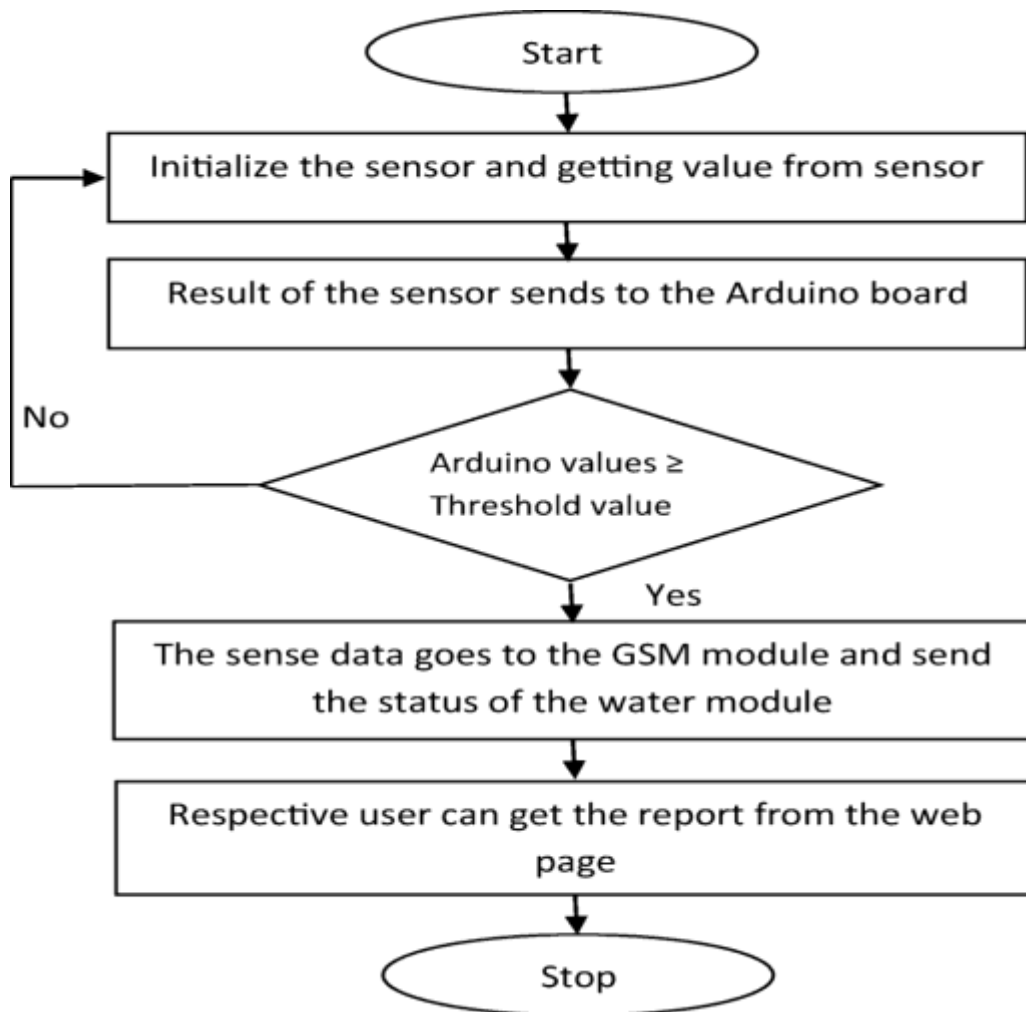
5. **RESULT**

Dashboard UI display

Node red flow : Node configuration
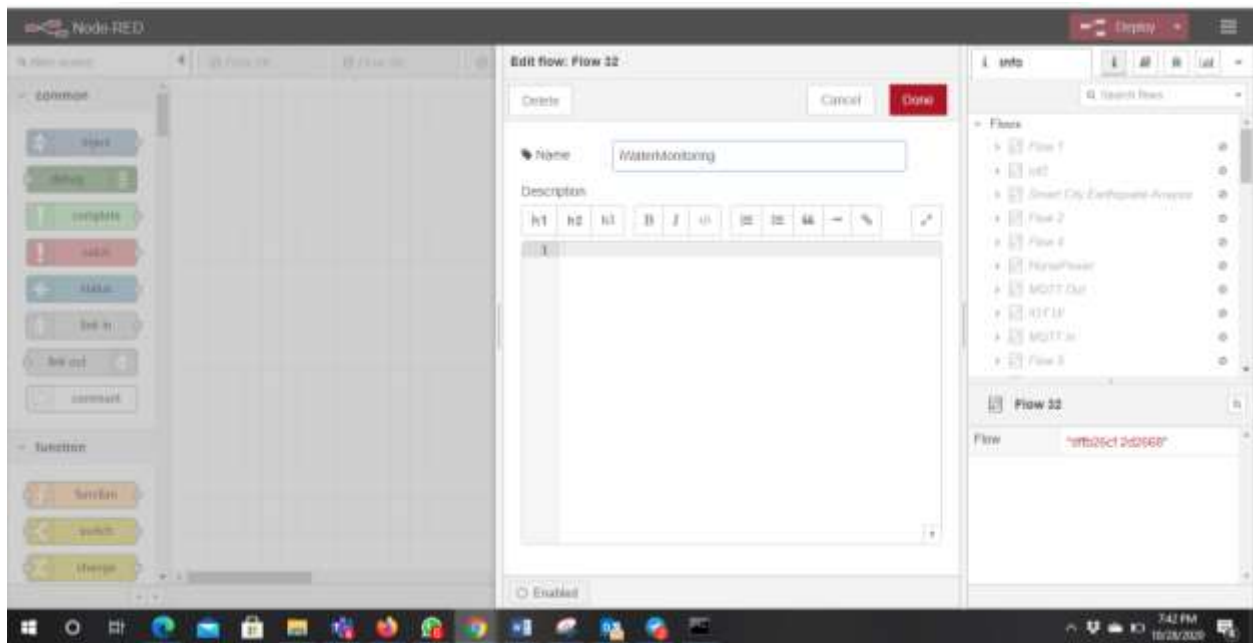
Edit flow: Flow 2

Delete   Cancel   Done

🏷 Name   iWaterMonitoring

Description

| h1 | h2 | h3 | **B** | *I* | </> | ≔ | ☰ | 66 | — | 🔗 | | ↗ |

1

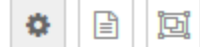**Edit inject node**

Delete   Cancel   Done

⚙ **Properties**   ⚙ 📄 ▣

🏷 Name   Water Level Switch

☰   msg. payload   =   ▼ $^0_9$ 100   ✖

☰   msg. topic   =   ▼ ^a_z ✖

➕ add

☐ Inject once after   0.1   seconds, then

↻ Repeat   interval   ▼

every   4   ▲▼   seconds   ▼

○ Enabled

Cancel   **Add**

⚙ **Properties**   ⚙   📄

🏷 Name | Automatic Water Level Indicator

🖼 Icon | dashboard

⊘ State | ⬤ Enabled

👁 Nav. Menu | ⬤ Visible

> The **Icon** field can be either a Material Design icon *(e.g. 'check', 'close')* or a Font Awesome icon *(e.g. 'fa-fire')*, or a Weather icon *(e.g. 'wi-wu-sunny')*.
>
> You can use the full set of google material icons if you add 'mi-' to the icon name. e.g. 'mi-videogame_asset'.

○ Enabled   ❶ 0 nodes use this config   On all flows   ⌄

Cancel   Add

⚙ **Properties**   ⚙   📄

🏷 Name   iWater

▦ Tab   Automatic Water Level Indicator   ✏

↔ Width   6

☑ Display group name

☐ Allow group to be collapsed

○ Enabled   ❶ 0 nodes use this config   On all flows

Edit audio out node

Delete   Cancel   **Done**

⚙ **Properties**   ⚙ 📄 🔲

⊞ Group   [Automatic Water Level Indicator] iWater   ⌄   ✏

📷 TTS Voice   0 : Microsoft David Desktop - English (United States) (en-US) ⌄

☐ Play audio when window not in focus.

🏷 Name   Name

Edit gauge node

Delete   Cancel   **Done**

⚙ **Properties**   ⚙ 📄 🔲

⊞ Group   [Automatic Water Level Indicator] iWate ⌄   ✏

🔲 Size   auto

☰ Type   Level   ⌄

⌶ Label   gauge

⌶ Value format   {{value}}

⌶ Units   units

Range   min 0   max 150

🏷 Name   Water Level Indicator

○ Enabled

Edit button node

Delete   Cancel   Done

⚙ **Properties**   ⚙ 📄 🖵

⊞ Group	[Automatic Water Level Indicator] Inte ⌄ ✎
▣ Size	auto
🖼 Icon	optional icon
Ⅰ Label	Alexa
❶ Tooltip	optional tooltip
🌢 Colour	Red
🌢 Background	Yellow

✉ When clicked, send:

Payload	⌄ ᵃ𝓏 Water is overflow. Automatic switch is trige
Topic	

○ Enabled

Edit form node

| Delete | | Cancel | Done |

⚙ Properties

Form elements	Label	Name	Type	Required	Rows	Remove
≡	Name	name	Text ∨	🔴		🗑
≡	Mobile	mobile	Number ∨	🔴		🗑
≡	Flat No	address	Text ∨	🔴		🗑
≡	Email ID	email	E-mail ∨	🔴		🗑

➕ element

| Buttons | 👍 Submit | 👎 Reset |

Topic | optional msg.topic |

6. ADVANTAGES :
1. Water is preserved
2. Wastage of water is reduced

7. DISADVANTAGES
1. If the sensor is failed to work, wastage of water will happen

8. CONCLUSION

Thus a system is designed for monitoring Main tank water level and Water flow to individual houses is continuously updated to IBM IoT platform Using Online simulator sensor for water flow and water level.

9. FUTURE SCOPE
a. Every gated community is planning for deploying such automation to preserve water for future generation.

10. BIBILOGRAPHY
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