COLLEGE NAME: PRIYADARSHINI ENGINEERING COLLEGE

COLLEGE CODE : 5119

COURSE NAME: Internet Of Things (IOT)

GROUP NUMBER: 1

PROJECT TITLE: SMART WATER MANGEMENT

PROJECT SUBMITTED TO: SKILL UP ONLINE

YEAR: 3rd

DEPARTMENT: ELECTRONICS AND COMMUNICATION ENGINEERING.

SEMESTER: 5th

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GUIDED BY: Dr.A.BANUPRIYA.HOD/ECE

SPOC NAME: Dr.R.THENMOZHI.HOD/EEE

INNOVATION :

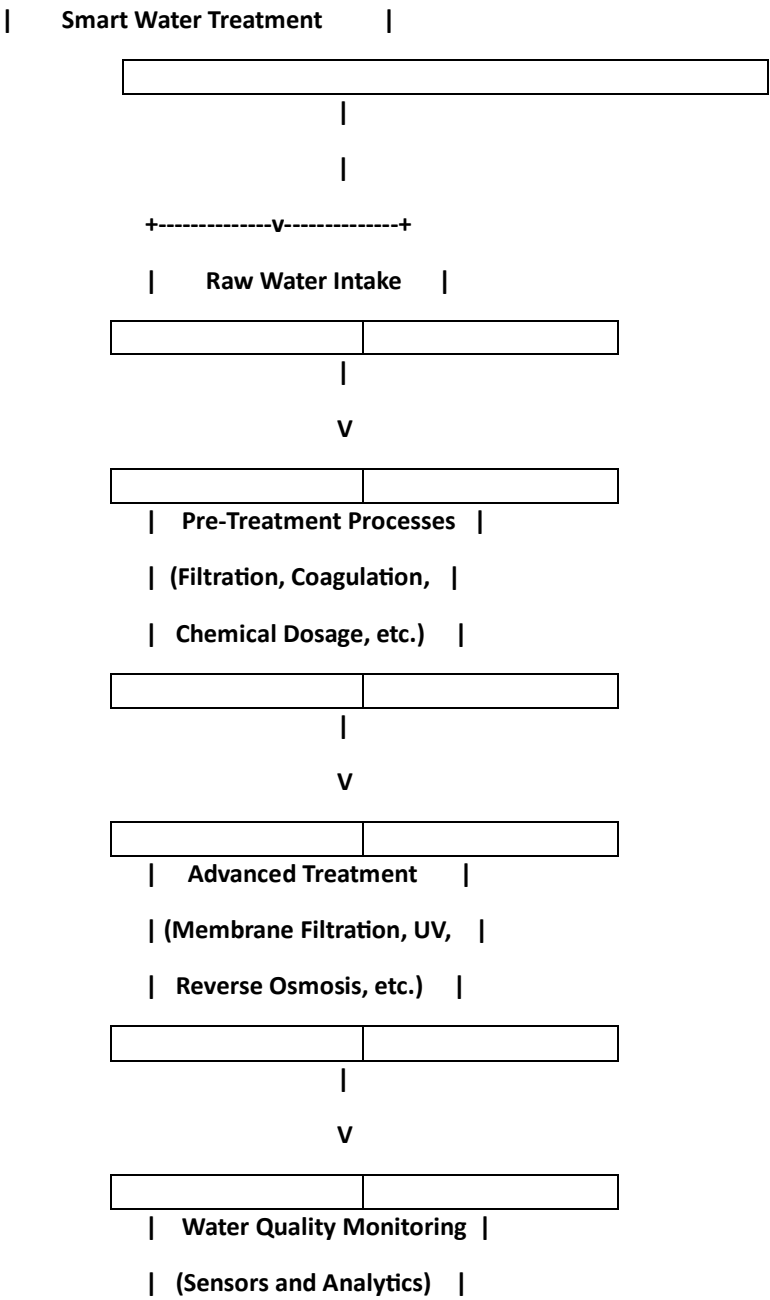**Implement lot sensors to monitor water consumption in public places like parks and gardens.**

The data can be made available on a public platform, encouraging water conservation efforts.

Smart meters should be used to monitor the outlet of water in Pipes. These data is to be sent to internet with the help of an ESP32 processor.

This data is then shared on a public platform to create awareness among the public.

BLOCK DIAGRAM

```
|     Smart Water Treatment        |
+--------------------------------------+
                  |
                  |
        +-------------v-------------+
        |      Raw Water Intake     |
        +-------------+-------------+
                      |
                      V
        +-------------+-------------+
        |   Pre-Treatment Processes |
        | (Filtration, Coagulation, |
        |   Chemical Dosage, etc.)  |
        +-------------+-------------+
                      |
                      V
        +-------------+-------------+
        |    Advanced Treatment     |
        | (Membrane Filtration, UV, |
        |   Reverse Osmosis, etc.)  |
        +-------------+-------------+
                      |
                      V
        +-------------+-------------+
        |   Water Quality Monitoring |
        |    (Sensors and Analytics) |
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┌──────────────┬──────────────┐
└──────────────┴──────────────┘
              |
              V
┌──────────────┬──────────────┐
|    Control and Automation    |
| (PLC, SCADA, IoT Integration) |
├──────────────┼──────────────┤
└──────────────┴──────────────┘
              |
              V
┌──────────────┬──────────────┐
|       Disinfection           |
| (Chlorination, Ozonation,    |
|    UV Disinfection, etc.)    |
├──────────────┼──────────────┤
└──────────────┴──────────────┘
        /
        V
┌──────────────┬──────────────┐
|   Treated Water Storage      |
├──────────────┼──────────────┤
└──────────────┴──────────────┘
        /
        V
┌──────────────┬──────────────┐
|   Distribution Network       |
| (Pipes, Pumps, Valves, etc.) |
├──────────────┼──────────────┤
└──────────────┴──────────────┘
        /
        V
┌──────────────┬──────────────┐
|      End Users               |
├──────────────┼──────────────┤
└──────────────┴──────────────┘
        /

|   (Web/Mobile App)           |
┌──────────────┬──────────────┐
└──────────────┴──────────────┘
              |
```

```
                        v
 ┌──────────────────┬──────────────────┐
 │      Feedback Loop      │
 │   (Optimization & Updates) │
 └──────────────────┴──────────────────┘
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DESCRIPTION :

1 Data Collection and Monitoring; Smart water treatment systems start by collecting data from various sensors and instruments placed throughout the treatment process. These sensors measure parameters such as water quality (pH, turbidity, contaminants), flow rates, and energy consumption.

2. Data Transmission; The collected data is transmitted in real-time to a central control system or a cloud-based platform through IoT (Internet of Things) connectivity. This allows for remote monitoring and control.

3. Data Analysis;Powerful analytics software processes the data to assess the condition of the raw water, treatment efficiency, and potential issues. It can identify trends, anomalies, and deviations from optimal performance.

4. Decision Support; Based on the data analysis, the system can make informed decisions or provide recommendations for adjustments. For example, it might suggest changing chemical dosages, altering treatment processes, or activating backup systems in case of equipment failure.

5. Automation; Smart water treatment systems often use Programmable Logic Controllers (PLCs) and Supervisory Control and Data Acquisition (SCADA) systems to automate the operation of pumps, valves, and other equipment. Automation ensures precise control and reduces the need for human intervention.