Smart Water Management

Introduction:

Water consumption management is a critical aspect of sustainable living and environmental conservation. With the increasing global population and the growing demand for water, it is essential to monitor and manage our water usage effectively. By implementing water consumption management strategies, we can conserve water resources, reduce wastage, and promote a more sustainable future.

The management of water consumption involves tracking, analyzing, and optimizing water usage patterns in various settings, including households, industries, and public spaces. It aims to raise awareness about water conservation, encourage responsible water usage practices, and implement measures to reduce water waste.

Effective water consumption management requires the collection and analysis of real-time water consumption data. This data can be obtained through the use of smart meters, sensors, and monitoring systems that track water usage at different points of consumption. By leveraging technology, we can gain valuable insights into our water usage patterns, identify areas of high consumption, and implement targeted conservation strategies.

Furthermore, water consumption management involves promoting behavioral changes and adopting water-efficient practices. This can include educating individuals and communities about the importance of water conservation, providing tips for reducing water usage, and incentivizing water-saving behaviors.

By implementing water consumption management strategies, we can achieve several benefits. Firstly, it helps to conserve water resources, ensuring their availability for future generations.

Project goal:

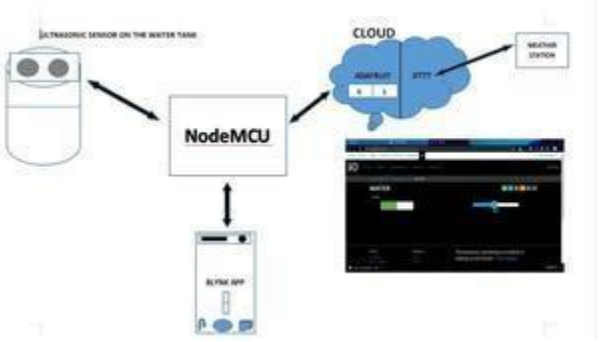
Automation of the water tank filling pumping mechanism. The top of the tank has a sensor installed to continuously check the water level being provided to it. The water pump shuts off automatically as soon as the water reaches the limitation level. It also computes the motor's power consumption and running duration. After then, the data is kept on cloud storage. **To generate a monthly budget estimate, it is simple to retrieve the necessary data. It analysis the data of water consumption using the previous water consumption level and today's data and along with the previous month data and stores the data to the cloud and shares the live data to the user using dynamic web page.**

Components required:

- Node MCU: It is a firmware which consists of a WIFI module ESP-8266. It consists of 13 General Purpose Input-output pins. The four pins from the sensors are connected to the four respective pins of node MCU. The inbuilt WIFI module provides its room over other microcontrollers.
- Ultrasonic Sensor: It detects the presence of any obstacles by detecting through the sound waves. The following basically has 4 pins i.e. Ground, Echo, Trig, VCC. The two circular-shaped icons demonstrate transmission and receiving. In our project, the ultrasonic sensor basically judges the water level or measures the distance from the overflow pipe.
- D.C. Motor/Pump: It draws water with the help of the D.C power supply. The D.C supply provides a controlled suction and is best suited for performing projects.
- Relay: The relay basically helps in controlling the motor. We use the four-channel relay in this case. It consists of six pins IN1, IN2, IN3, IN4, VCC, and GND. The four channels out of which each contains three openings named NO, C, NC respectively.

Methodology & Implementations:

- The follows I.O.T based project facility in saving water.
- Controlling water flow from the pipe of the water tank with the help of sensors fixed near tank.
- Budget estimation monthly through saving the time for which the pump was active in a day and sequentially for months.
- A sensor fixed judges the water level rising to the beam of the tank and instantaneously turns off the pump being full. Groundwater is being saved from being wasted.
- Cost effective and budget savior as prevention of extra working of the pump.



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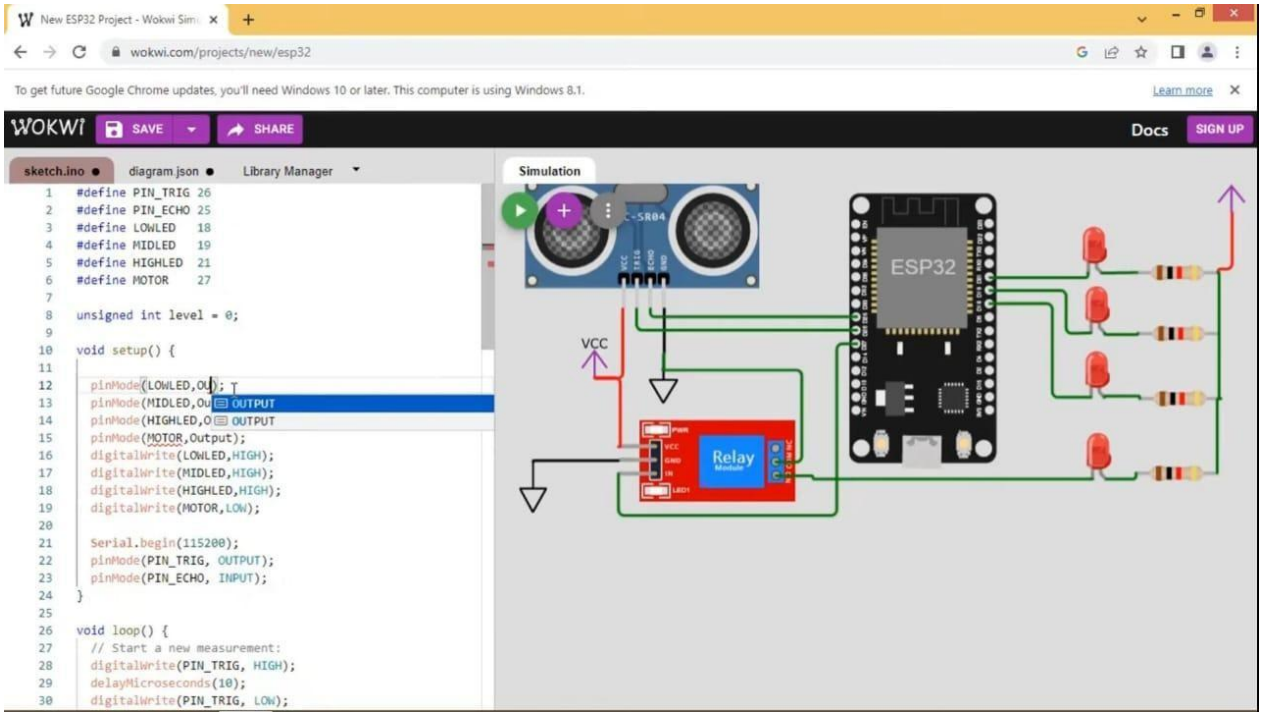
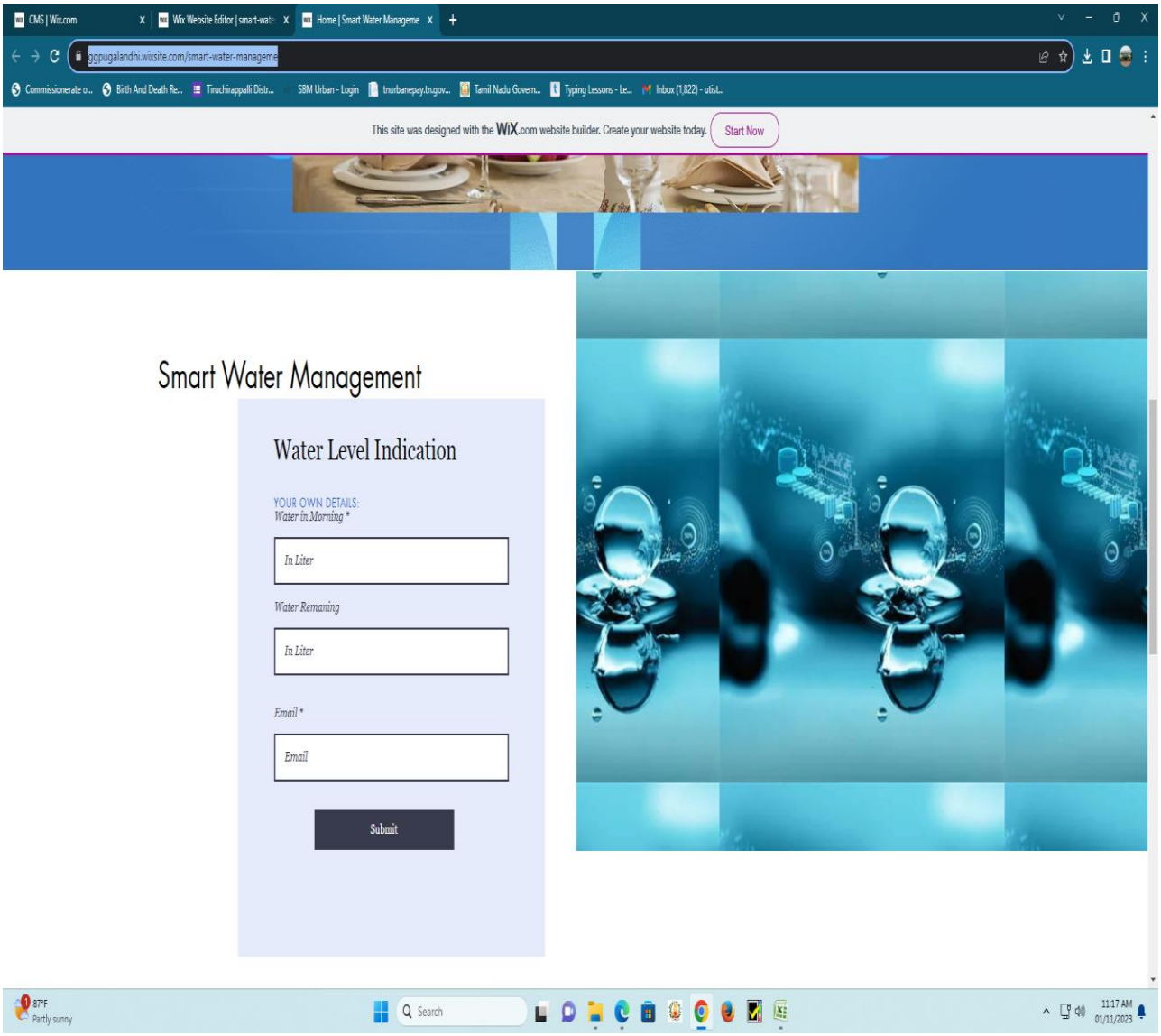
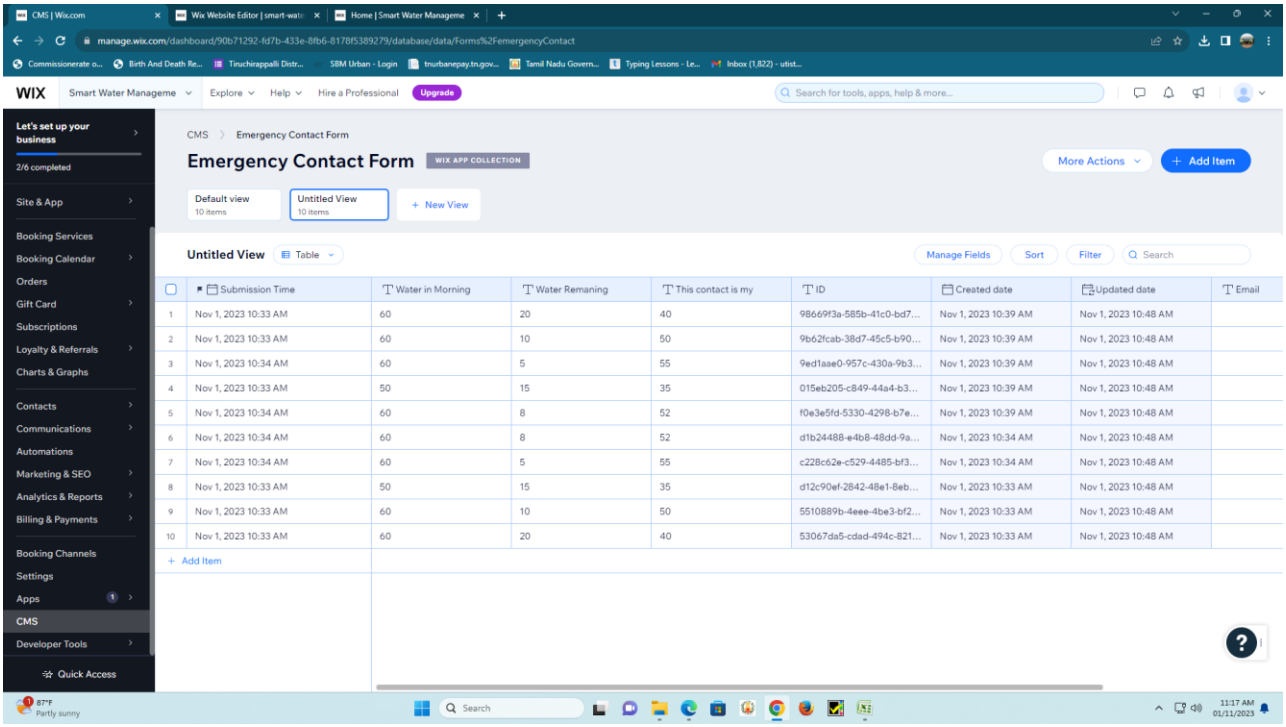


WEB PAGE OUT PUT :

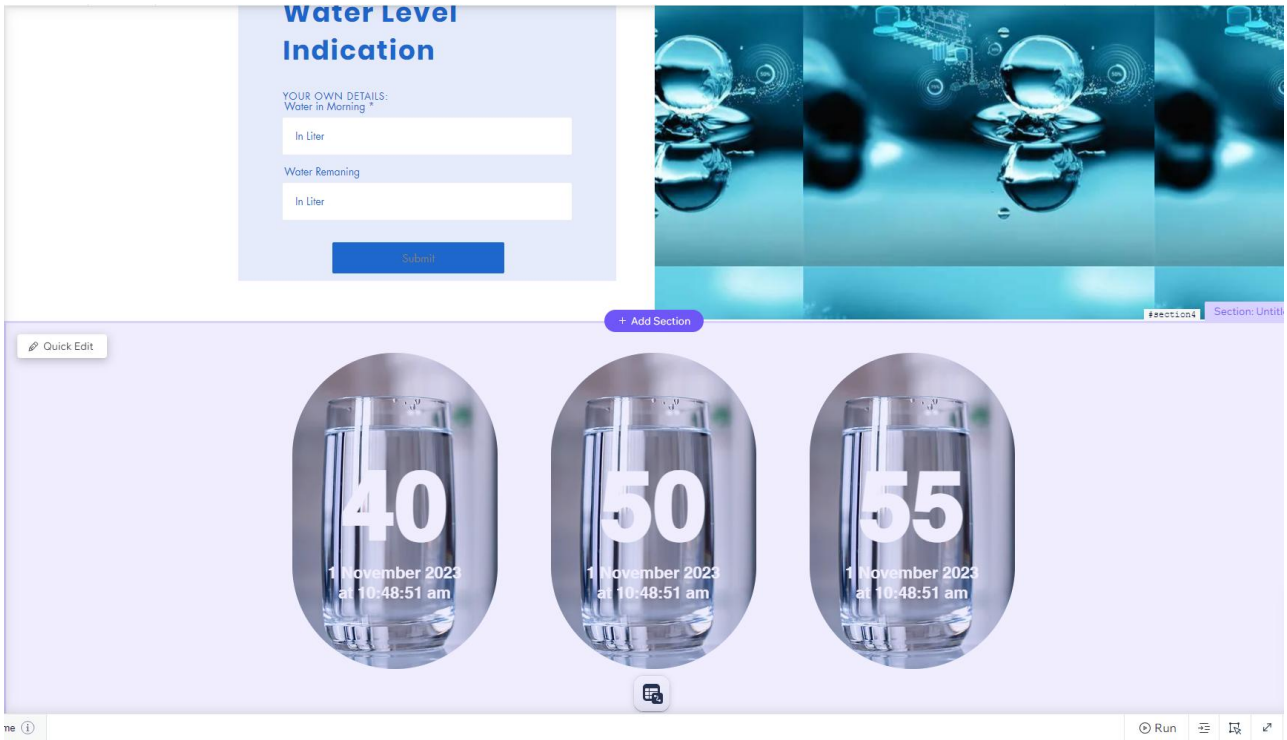
- **GETTING DATA (WATER LEVEL IN MORNING ,CURRENT WATER LEVEL FROM CLOUD USING ULTRASONIC SENSOR**



- **DISPLAYING RECIVIED DATA IN TABLE FORMATE**



- **DISPLAYING WATER CONSUMPITION IN WEBSITE**



WEBSITE LINK :

https://ggpugalandhi.wixsite.com/smart-water-manageme

Conclusion:

In this platform, users can easily monitor their water consumption, identify patterns, and make informed decisions to conserve water. Additionally, the platform can provide insights and recommendations for water conservation efforts, promoting sustainable water usage practices.

By raising awareness and providing real-time data, this data-sharing platform can contribute to a more efficient and responsible use of water resources, ultimately helping to address water scarcity and environmental concerns.