IOT BASED SMART WATER MANAGEMENT

Phase 2:INNOVATIVE PART

This project helps to regulate the proper maintenance of water tank information to monitoring section with proper updation of records.

Problem affects various processes in water management, such as water consumption, distribution, Water dust formed in the water tank.

These problem can overcome by implementing proper monitoring system and information update system.

Set of sensor like Turbidity, Salt sensor, pH sensor and Water flow sensors were used.

This sensor informs about the water level tank and communicate to the monitor section.

To maintain the tank without bacteria and microbes the Chlorine powder is sprayed if there is any changes in the ph value is found.

If the water level reaches minimum position the motor automatically starts and when it reaches the maximum the motor stops automatically.

A wireless sensor network is formed by connecting two and more water tanks using RF radio channel transceiver with monitoring section.
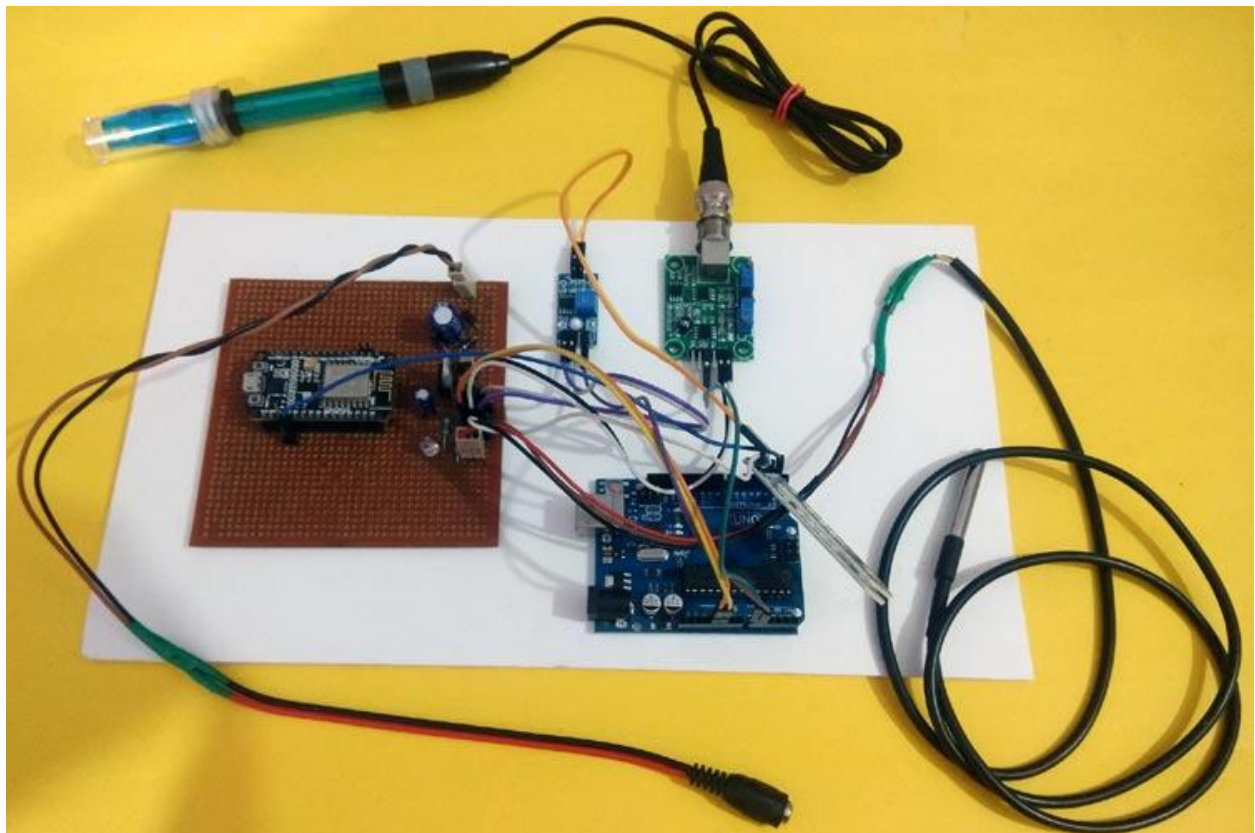
Iot is an excellent solution for water boards to assist industry partners, states, and households in keeping up with the maintenance and proficiency levels.

The significant purpose of iot in water managements systems is to make the entire process easy and efficient.

It needs to involve each framework and player in the water store network water to stay up to date on the production network.

Maybe there could be no greater innovation to organize the inventory network with crucial processes, information application, collaboration and smart instruments than iot.

Components Used:

- **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.
- **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.

Software Used:

- **Adafruit:** Adafruit.io is a cloud service. It's meant primarily for storing and then retrieving data and it displays your data in real-time, online, makes project internet-connected: Control motors, read sensor data, and connect projects to web services like Twitter, RSS feeds, weather services, etc.
- **Arduino IDE:** Arduino Uno is a microcontroller board. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header, and a reset button.
- It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.
- **IFTTT:** If This Then That, also known as IFTTT. It helps you connect all of your different apps and devices.
- We can enable your apps and devices to work together to do specific things they couldn't do otherwise.
- **Blynk:** Blynk is a platform that allows quickly build interfaces for controlling and monitoring

your hardware projects from your iOS and Android device. We can create a project dashboard and arrange buttons, sliders, graphs, and other widgets onto the screen.

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.

Diagram:

BLOCK DIAGRAM

CLOUD

ULTRASONIC SENSOR ON THE WATER TANK

NodeMCU

WEATHER STATION

BLYNK APP