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PROJECT: SMART WATER SYSTEM

Project Submission Part 2: Innovation

Water management has never been more important to the world than it is today. 20 years ago, one would have considered it improbable that water managementwould be vital to accomplishing weighty goals like fighting climate change or achieving political equality.

innovative ideas for water management?

Top 8 Water Management Trends in 2024

- Digital Water Management.
- Wastewater Processing.
- Advanced Filtration.
- Flood Prevention.
- Water-saving Technology.
- Decentralized Infrastructure.
- Innovative Materials.
- Desalination.

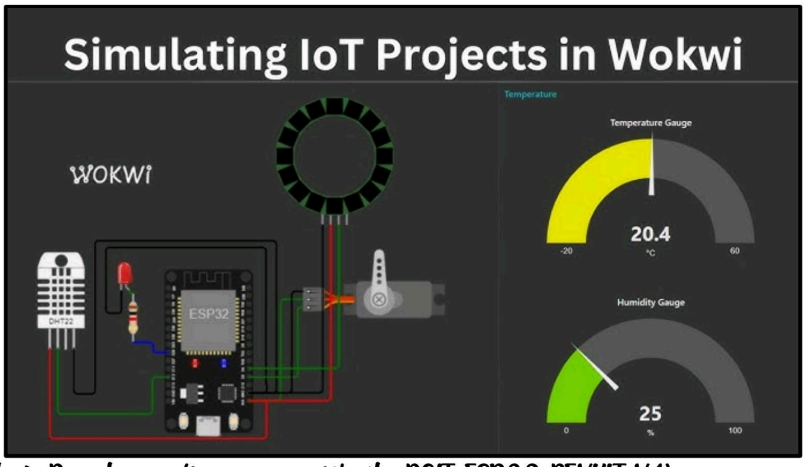
But with the capabilities that are increasingly being made available through smart water management innovations, it's looking more likely that smart water management may help save the world.

Module 3:

Getting started with ESP32 and Wokwi Platform

The Sonoff devices uses the ESP8266 MC, which is basically the predecessor of the ESP32. But yes, the ESP32 is robust enough to be used in industrial applications

Look for ESP32 by Espressif



Systems. Click on that entry, Install. After installing, restart your Arduino IDE and navigate to Tools > Board to ensure you have ESP32 boards available. Now select your board in the Tools > Board menu (in our case, it's the DOIT ESP32 DEVKIT V1).:

ESP32 proves to be a versatile and beginner-friendly microcontroller well-suited for IoT projects. It is capable of working with different IoT platforms and standards and works well with the two IoT platforms we selected for our experiments

```
diagram.json    libraries.txt    Library Manager
clude <Wire.h>
clude <LiquidCrystal_I2C.h>
uidCrystal_I2C lcd(0x27, 16, 2);  // Change the HEX address

clude <Servo.h>
vo myservo1;

 IR1 = 2;
 IR2 = 4;
 SmokeDetectorPin = 6;  // Digital pin for the smoke detector
 BuzzerPin = 7;         // Digital pin for the buzzer

 Slot = 4;  // Enter Total number of parking Slots

l flag1 = false;
l flag2 = false;

igned long lastLcdUpdate = 0;  // Variable to track the time of the las
igned long lcdUpdateInterval = 1000;  // Update the LCD every 1000 mill

d setup() {
cd.begin(16, 2);  // Initialize LCD with 16 columns and 2 rows
cd.backlight();
inMode(IR1, INPUT);
inMode(IR2, INPUT);
inMode(SmokeDetectorPin, INPUT);
inMode(BuzzerPin, OUTPUT);

yservo1.attach(3);
yservo1.write(100);
```

The Arduino IDE works great for small applications. However, for advanced projects with more than 200 lines of code, multiple files, and other advanced features like auto completion and error checking, VS Code with the PlatformIO IDE extension is the best alternative.

Module 4:

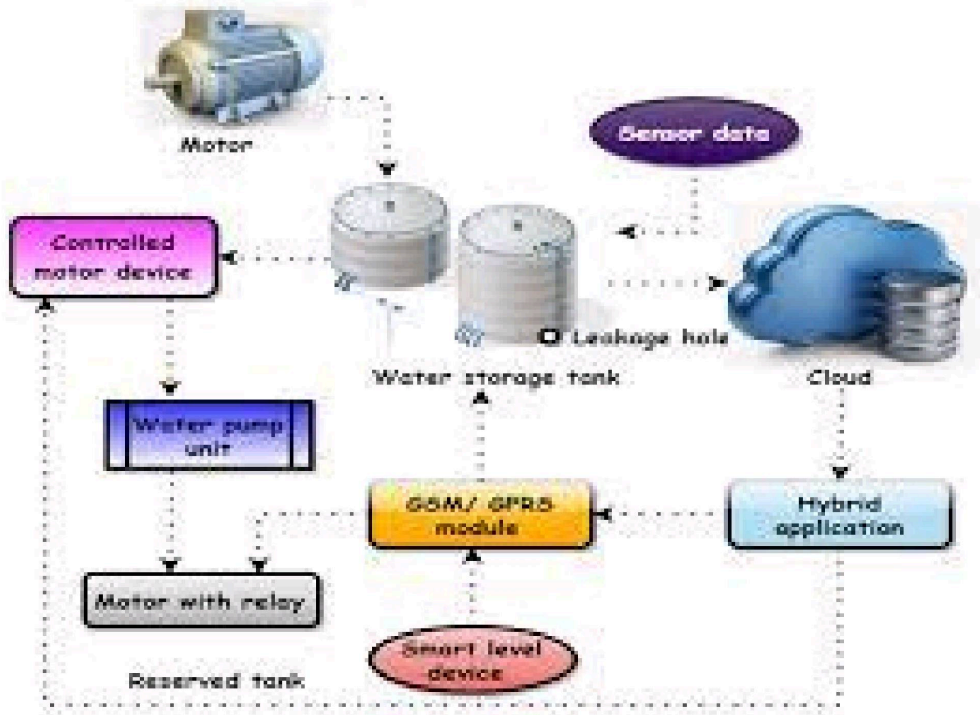
IoT Communication Technologies:

An IoT-based water managementsystem is a centralized management that enables drivers to search for and reserve a water managementspot remotely through their smartphones. It offers a convenient arrangement for drivers to park their cars when they are looking to avoid potential traffic congestion

Technologies such as machine vision, multi-agent systems are suitable for open water managementlots to acquire water managementoccupancy information and GPS can be used to provide navigational directions.

Nwave IoT Based Smart Water managementSystem:

The **Nwave water management management software** and smart sensors power your wireless car water management monitoring system providing all of the necessary tools to operate with minimal effort and no programming skills required.



However, the most widely adopted types of smart water managementIoT systems include:

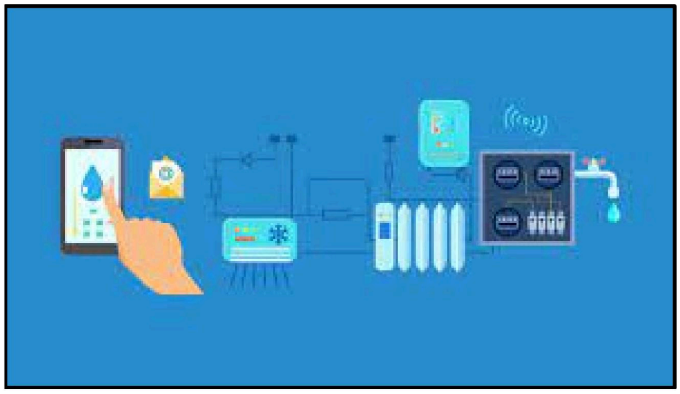
- *cameras.*
- *overhead radars/lidars.*
- *ground sensors.*

Module 5:

IoT protocols:

A water managementsystem also requires protocols to ensure IoT devices' and sensors' connectivity in the water managementlot. These can be MQTT, LoRaWAN, Zigbee protocol for wireless IoT networks, or else. Such a system also requires video transmission protocols if it uses video surveillance.

IoT is used in smart water management system?



An IoT-based water management system is a centralized management that enables drivers to search for and reserve a water managementspot remotely through their smartphones. It offers a convenient arrangement for drivers to park their cars when they are looking to avoid potential traffic congestion.

An IoT-based smart water managemen tsystem is a decent solution for businesses and consumers, providing real-time data on water managementspace availability, pricing, payments, and more. It can positively impact the environment and traffic. Moreover, IoT solutions ensure efficient water management reservation and management.