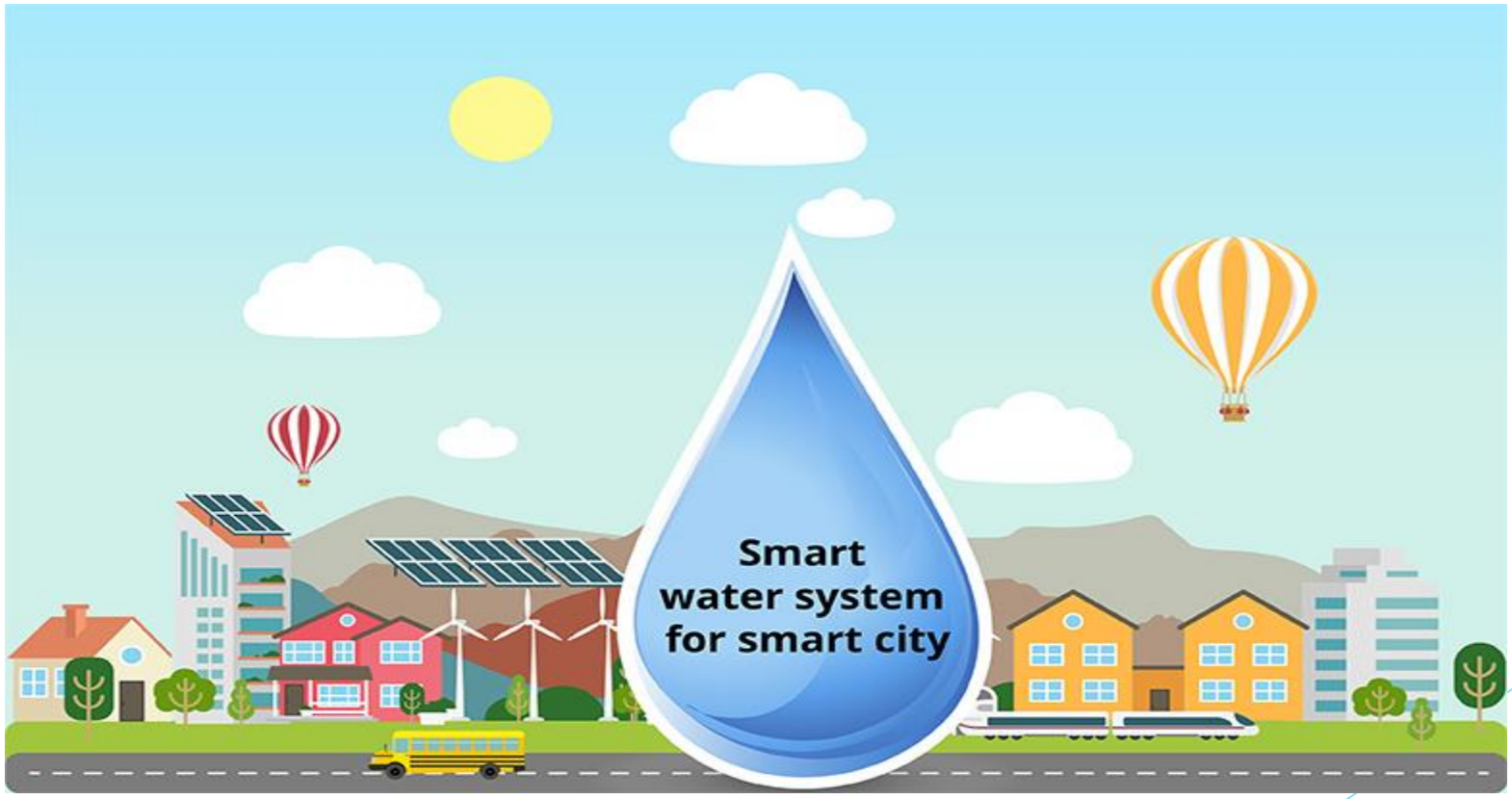
Smart water management using wokwi sensors



INTRODUCTION

Developing a complete smart water management system involving hardware like WOKWI sensors web technologies requires a substantial amount of code and configuration. Writing a comprehensive system involves multiple programming languages, databases, and frameworks.

Simulation using wokwi

CREATE A VIRTUAL CIRCUIT:

1. Visit the Wokwi website and create a new circuit.
2. Add components representing WOWKI sensors to your circuit. Wokwi provides a wide range of components that you can use in your virtual circuit.

1.CONNECT COMPONENTS:

1. Connect the WOWKI sensors to a microcontroller (like Arduino) virtually, simulating the actual hardware connections.

3. Create a circuit:

- Connect the sensors to the microcontroller according to their datasheets and specifications.
- Use Wokwi's online circuit simulation tool to create a circuit that includes the selected sensors, microcontrollers (such as Arduino), and any other components required for your project.

4. Write simulation code:

•Write code for the microcontroller to read data from sensors and process it. Use conditional statements and algorithms to manage water resources efficiently.

•Simulate sensor readings and test your code within the Wokwi simulation environment.

•For example, using Arduino code, you can read sensor values, process them, and control actuators (like pumps or valves) based on the readings.

To create a water management simulation using a sensor and the Wokwi platform, you'll need to use the Arduino platform and simulate it in the Wokwi environment. Here's a basic example using a virtual water level sensor:

1.Set up an Arduino project using the Arduino IDE or online Arduino editor.

2.Create a new Arduino sketch and use the following code to simulate a water management system with a virtual water level sensor:

```
const int sensorPin = A0;
// Analog pin for the water level sensor
const int pumpPin = 2;
// Digital pin for the water pump
int waterLevel = 0;
void setup() {
  pinMode(sensorPin, INPUT);
pinMode(pumpPin, OUTPUT);  Serial.begin(9600);
}void loop() {
// Read the water level from the virtual sensor
waterLevel = analogRead(sensorPin);
// Simulate a water management system based on
the water level
```

```
if (waterLevel < 300) {
  // If water level is low, turn on the water pump
digitalWrite(pumpPin, HIGH);
Serial.println("Water level is low. Pump is ON."); } else {
 // If water level is sufficient, turn off the water pump
digitalWrite(pumpPin, LOW);
Serial.println("Water level is sufficient. Pump is OFF."); }
delay(1000);
// Simulate readings every 1 second}
```

3.In the Arduino IDE or online Arduino editor, select the "Tools" menu, and choose your target board and port.
4.Click the "Verify" button to compile the code, and if there are no errors, click the "Upload" button to upload the code to your virtual Arduino board in the Wokwi simulation.
5.In the Wokwi platform, you can add a virtual water level sensor and a pump to your simulated circuit. Interact with the circuit, and you'll see the water management simulation in action.

SIMULATION CODE FOR WATER MANAGEMENT

```
let waterLevel = 50; // Initial water level in percentage

function updateWaterLevel() {
  document.getElementById("water-level-value").textContent = waterLevel + "%";
}

function togglePump() {
  if (waterLevel < 100) {
    waterLevel += 10;
  } else {
     waterLevel = 0;
   }
   updateWaterLevel();
}

document.getElementById("pump-button").addEventListener("click", togglePump);
```

SIMULATON DIAGRAM