

Installation and Execution Process

1. Installation Steps:

1. Set Up the Environment:

- Install Python 3.x if not already installed.
- Install necessary libraries using the following command
`pip install flask adafruit-blinka adafruit-circuit python-dht`

2. Hardware Setup (if applicable):

- Connect GPIO devices as specified in `gpio_code.py`.
- Ensure proper wiring of the sensor components like temperature, smoke, and distance sensors.

3. File Structure:

```
/project-directory
├── app.py
├── gpio_code.py
├── templates
│   └── index.html
└── static
    └── style.css (if used)
```

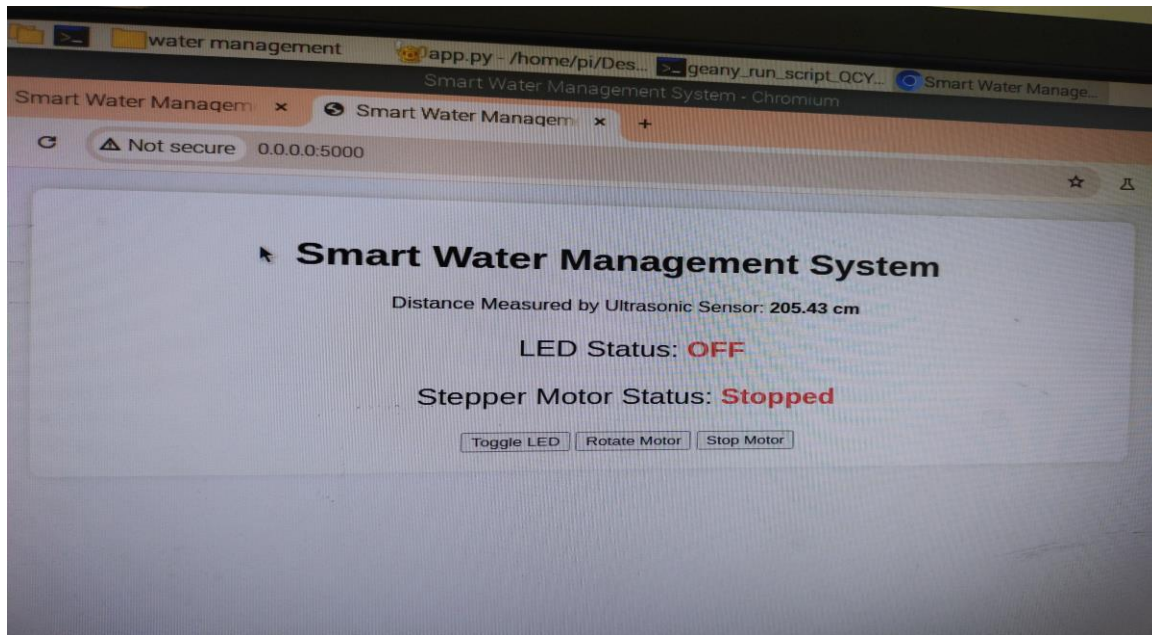
2. Execution Steps:

1. Start the Application:

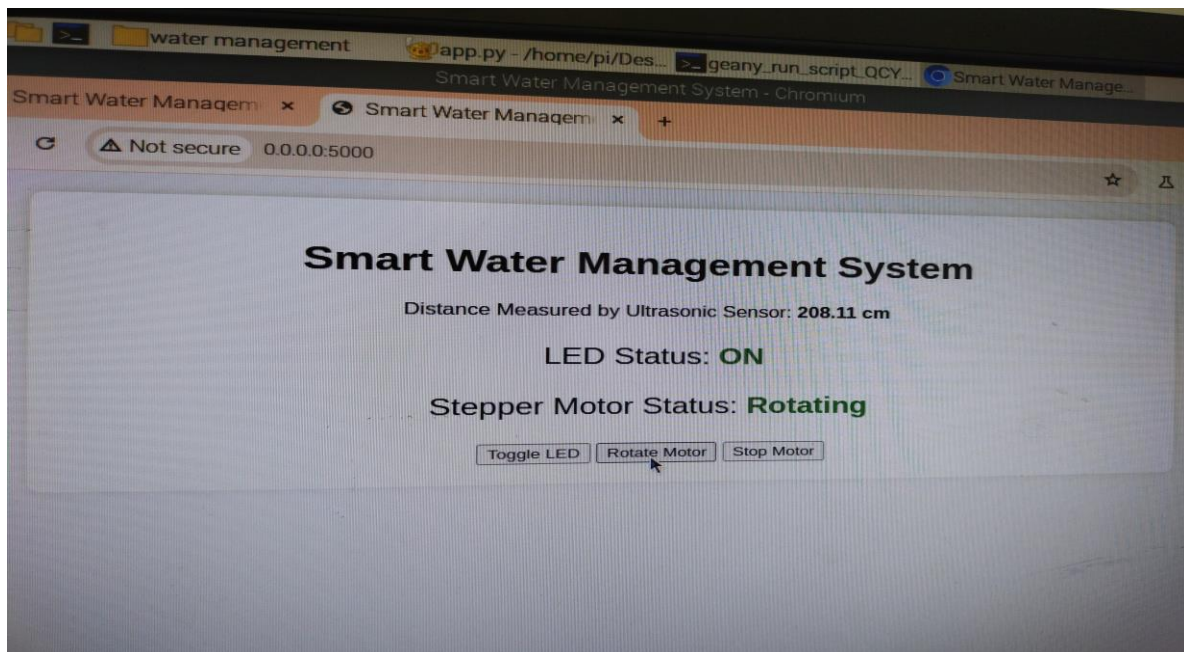
- Navigate to the project directory:
`cd /project-directory`
- Run the Flask application:
`Python app.py`

2. Access the Web Interface:

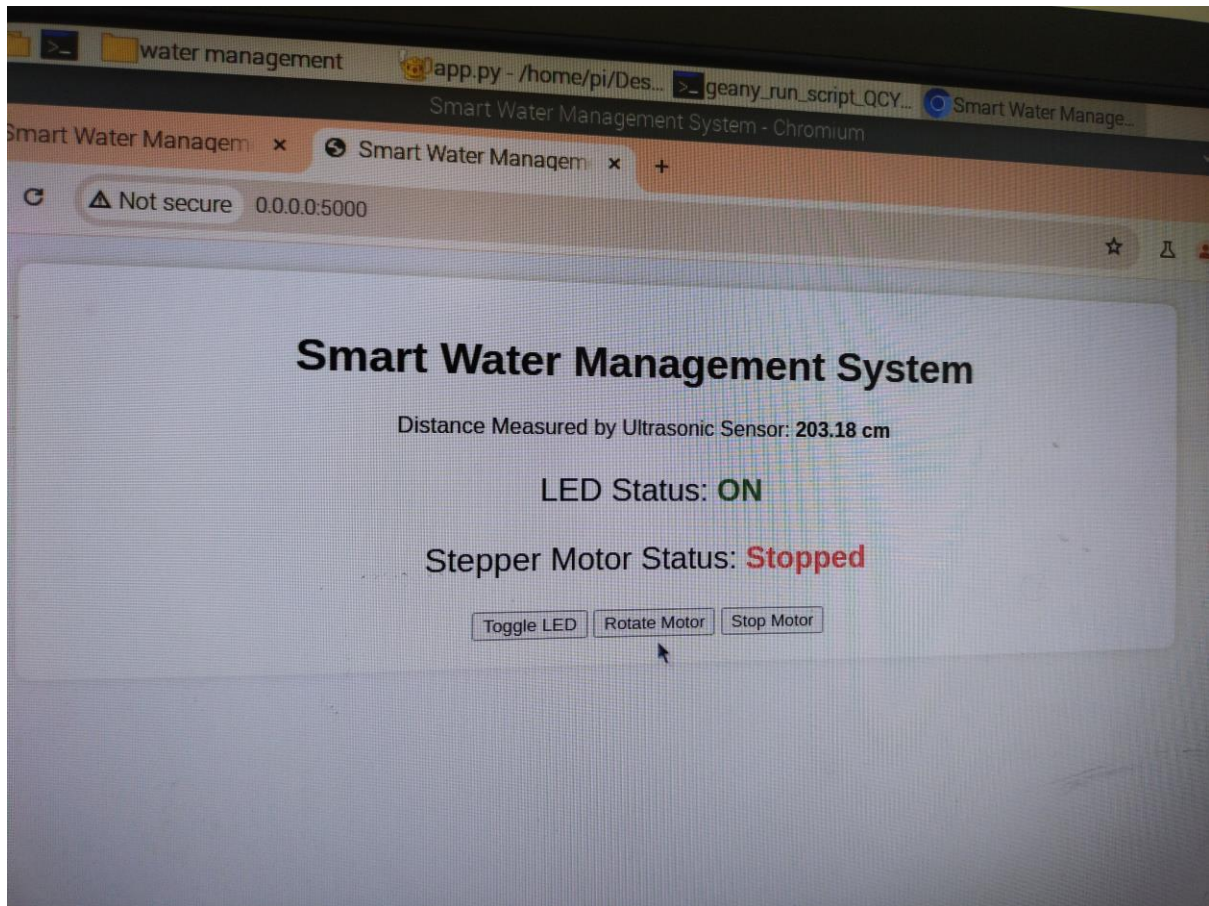
- Open a web browser and enter the following URL:
`http://0.0.0.0:5000/`
- Use the buttons on the web interface to control LEDs status and the stepper motor Status
- Click "Toggle LED" to switch LED on and rotate the motor to turn on the stepper motor or Click Stop motor to turn off the rotation of motor.



This interface represents a Smart Water Management System that uses an ultrasonic sensor to measure water levels (distance: 221.69 cm). The user can control an LED and a stepper motor, which might regulate water flow or alert users, using the provided buttons. It is likely hosted on a local server for monitoring and control, possibly as part of an IoT-based automation setup.



This interface for a Smart Water Management System shows real-time distance measurement using an ultrasonic sensor (207.06 cm). The LED is currently ON, and the stepper motor is actively rotating, likely to regulate water flow or perform a related function. Users can control these components via the provided buttons, enabling efficient and automated water management.



This image shows a web-based control interface for a "Smart Water Management System." The system uses an ultrasonic sensor to measure distances, displays the LED status (currently "ON"), and controls a stepper motor (currently "Stopped") via buttons to toggle the LED or operate the motor. It likely integrates hardware like a microcontroller to monitor and manage water resources efficiently.