Installation and Execution Process

1. Installation Steps:

1. **Set Up the Environment:**

   o Install Python 3.x if not already installed.

   o Install necessary libraries using the following command

   pip install flask adafruit-blinka adafruit-circuitpython-dht

2. **Hardware Setup (if applicable):**

   o Connect GPIO devices as specified in gpio_code.py.

   o 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:**

   o Navigate to the project directory:

   cd /project-directory
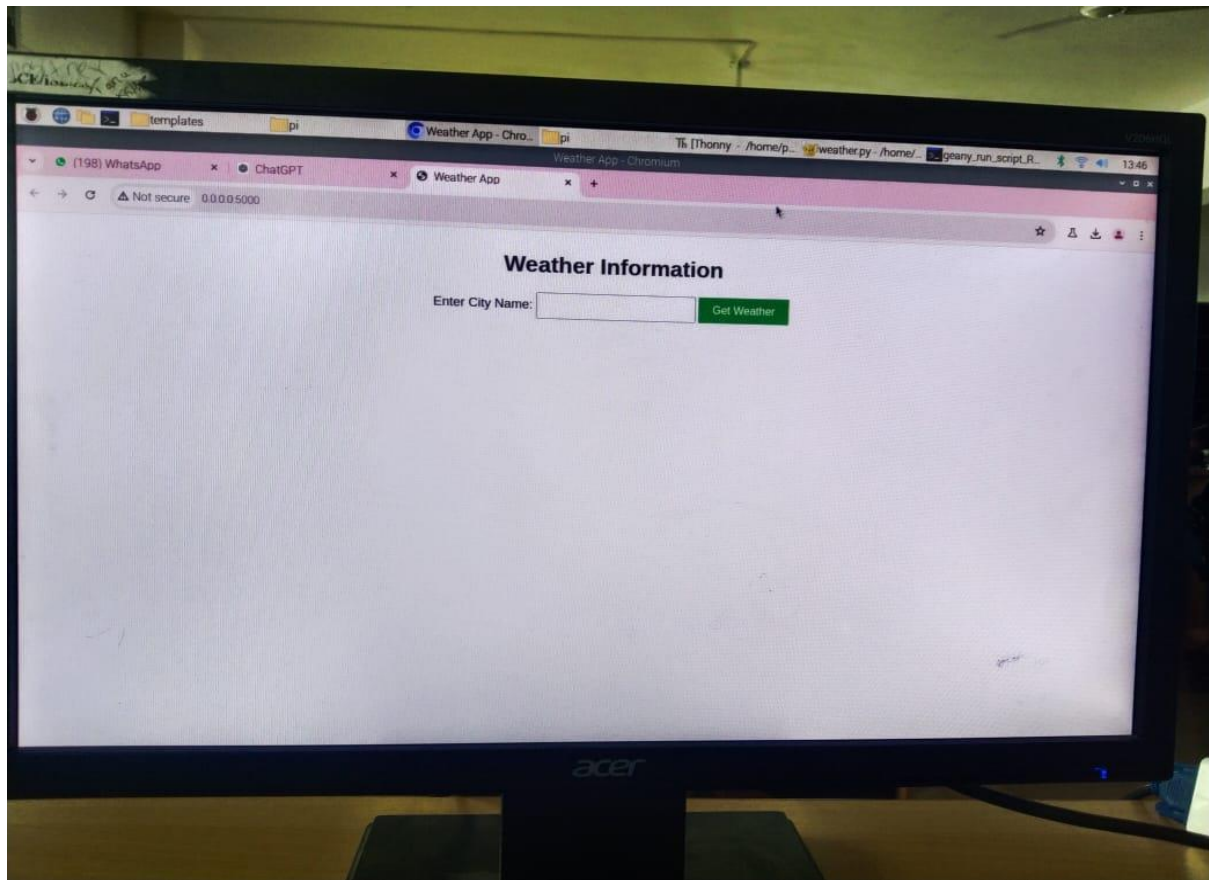
   o Run the Flask application:

   python app.py

2. **Access the Web Interface:**

   o Open a web browser and enter the following URL:

   http://localhost:5000

3. **Using the System:**

   o Use the buttons on the web interface to control LEDs and the fan.

o Click "Get Status" to retrieve sensor readings such as temperature, humidity, distance, and smoke level.


The user interface of this smart weather application is simple and user-friendly. It features a text input field for entering a city's name and a "Get Weather" button to fetch the weather information. The design is clean and functional, ensuring ease of use for users looking to retrieve weather data quickly.
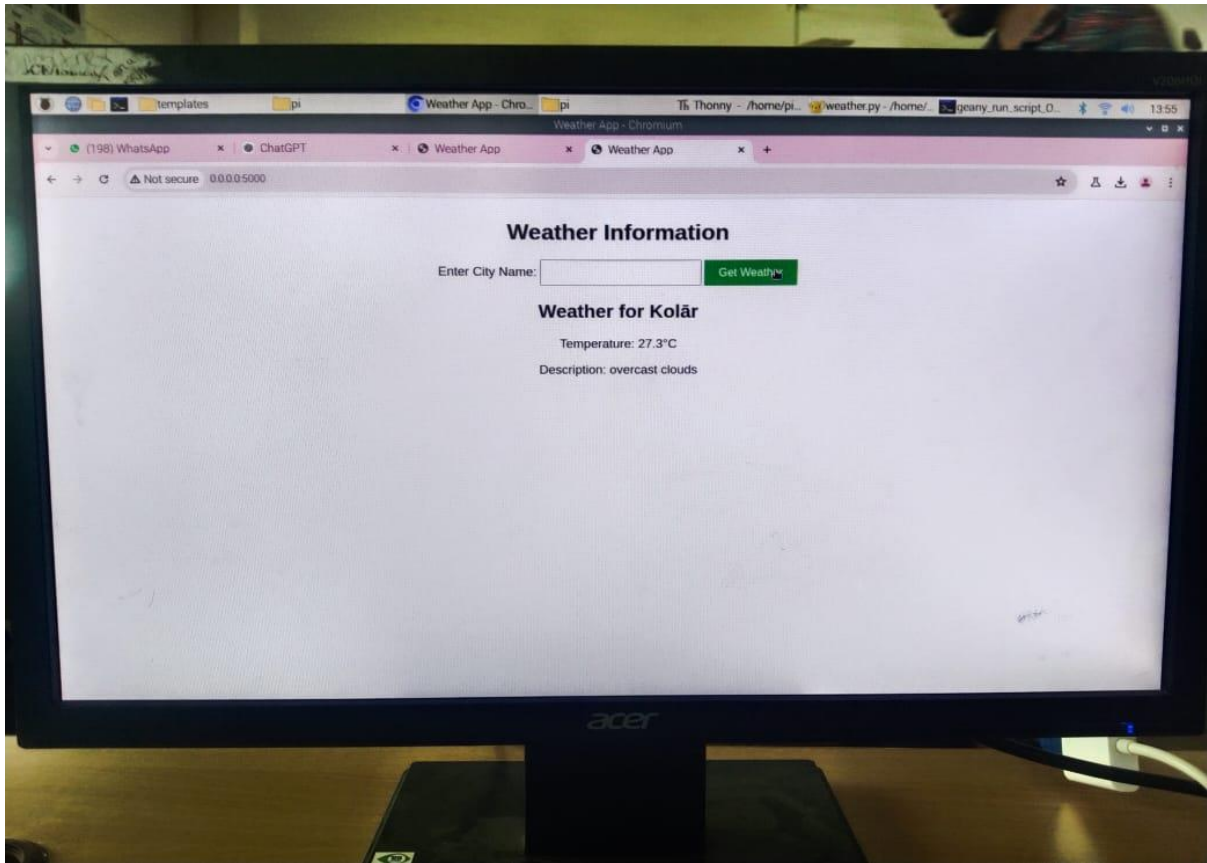
This snapshot shows the updated weather interface for the city of Kolar. The displayed information includes the temperature (27.3°C) and the weather condition (overcast clouds), providing real-time data for users. The design remains clean and functional, with the option to update weather data for other cities as well.
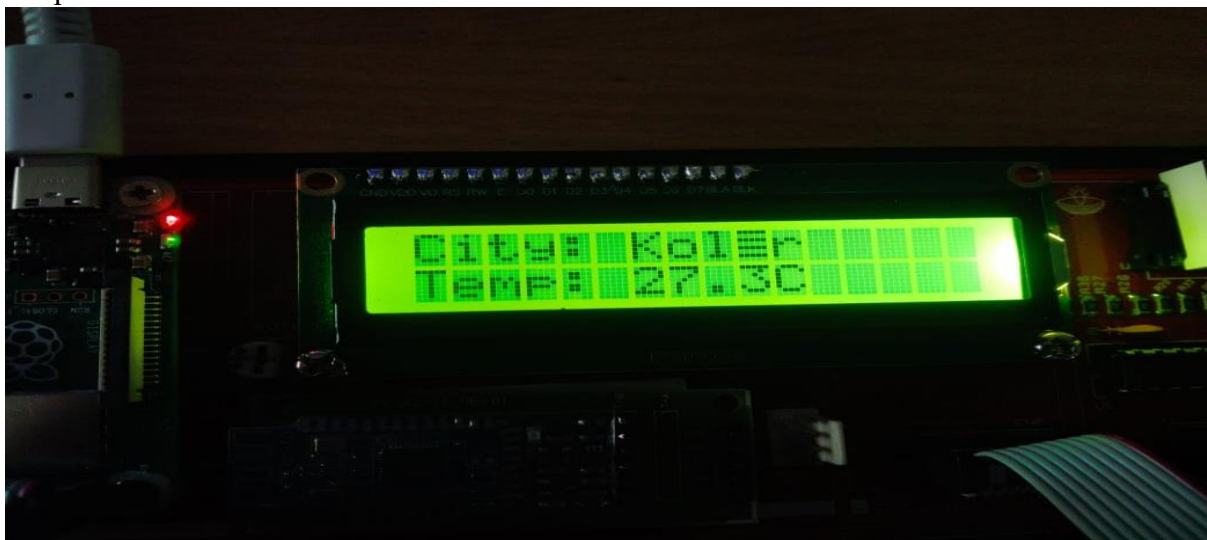
Additionally, a separate display from the system's hardware shows the city name (Kolar) and the temperature (27.3°C) on an LCD screen. This physical display complements the web interface by offering a clear and accessible presentation of the weather information, ideal for smart home integration.
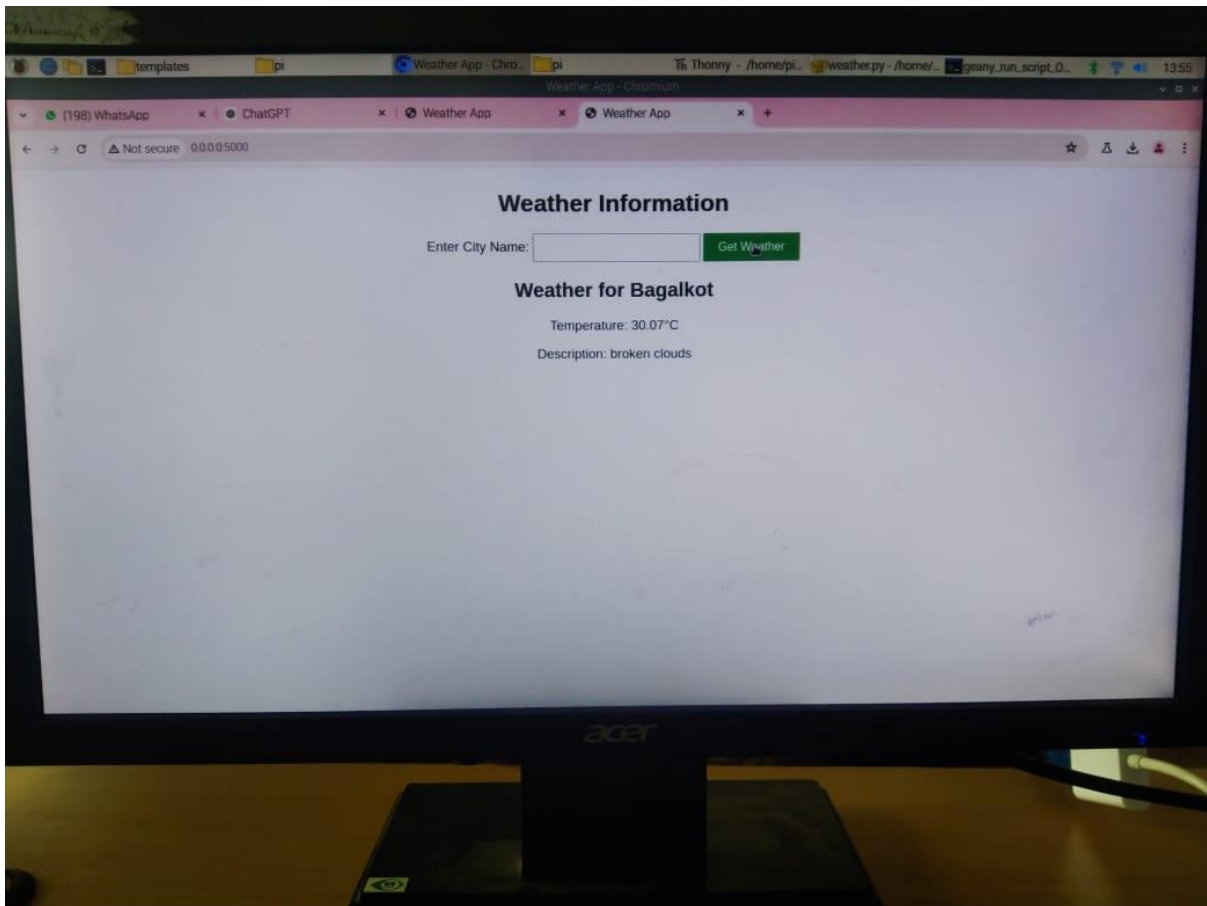
This snapshot shows the updated weather interface for the city of Bagalkot. The displayed information includes the temperature (30.07°C) and the weather condition (broken clouds), providing real-time data for users. The design remains clean and functional, with the option to update weather data for other cities as well.

Additionally, a separate display from the system's hardware shows the city name (Bagalkot) and the temperature (30.07°C) on an LCD screen. This physical display complements the web interface by offering a clear and accessible presentation of the weather information, ideal for smart home integration.