CSN-527
IoT Project Presentation

WiFi synched clock and climate monitoring
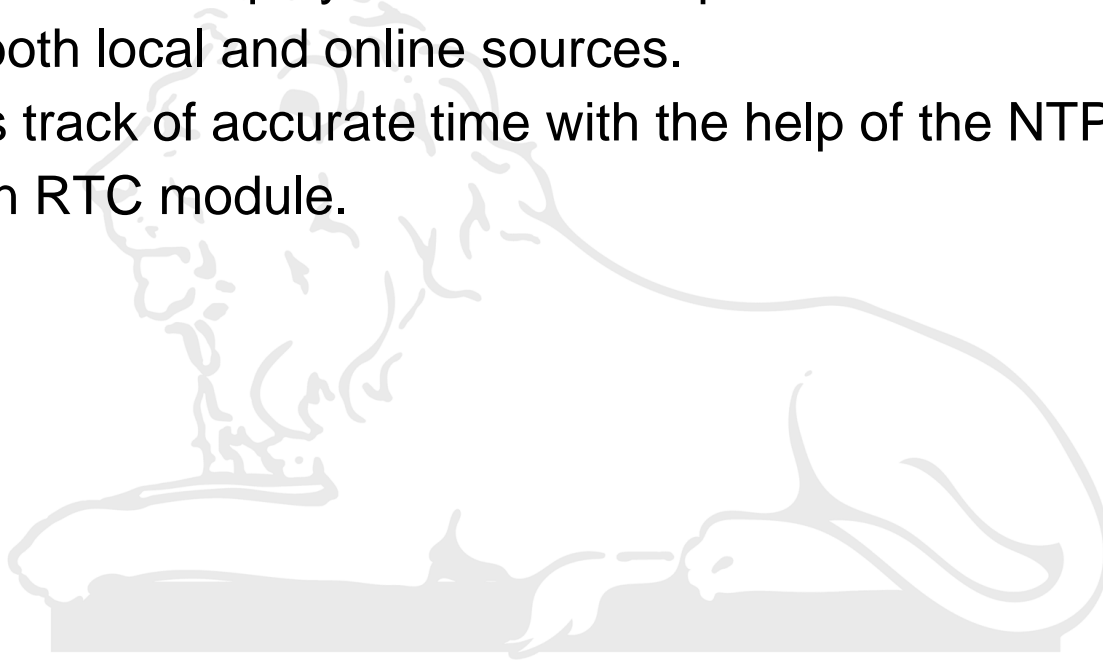
Group – 4

Dagdiya Piyush - 19114025
*Abhishek Anand - 19114002*

Problem Statement

- The WiFi synched clock and climate monitoring project is an IoT-based project that
  - Monitors and displays real-time temperature and humidity levels from both local and online sources.
  - Keeps track of accurate time with the help of the NTP server API and an RTC module.
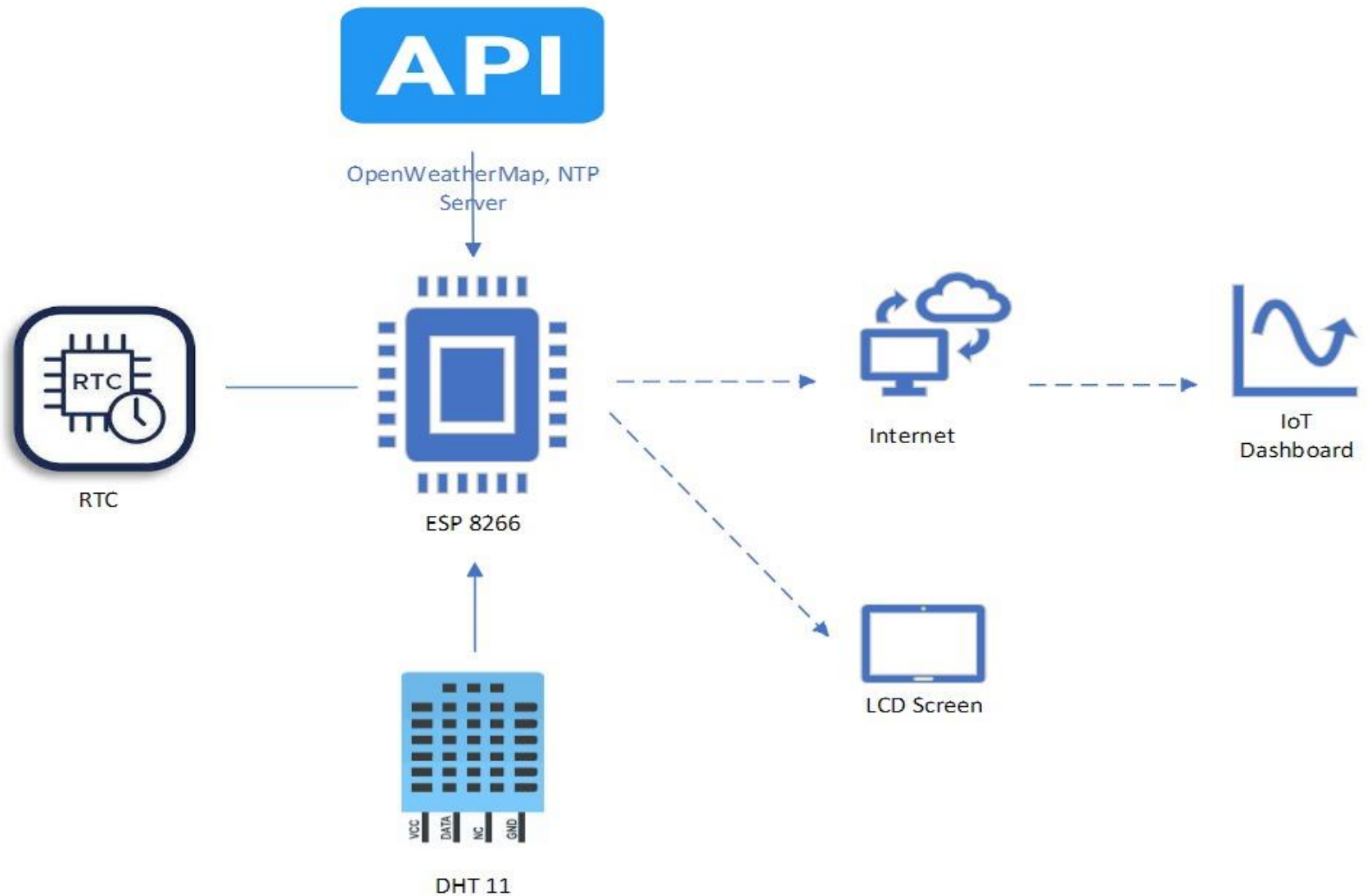
Devices Used

- Arduino board (Uno, Nano, etc.)
- Real-time clock (RTC) module (e.g., DS1307, DS3231)
- DHT11 temperature and humidity sensor
- Wi-Fi module (e.g., ESP8266)
- 16x2 LCD display
- Jumper wires
- Breadboard
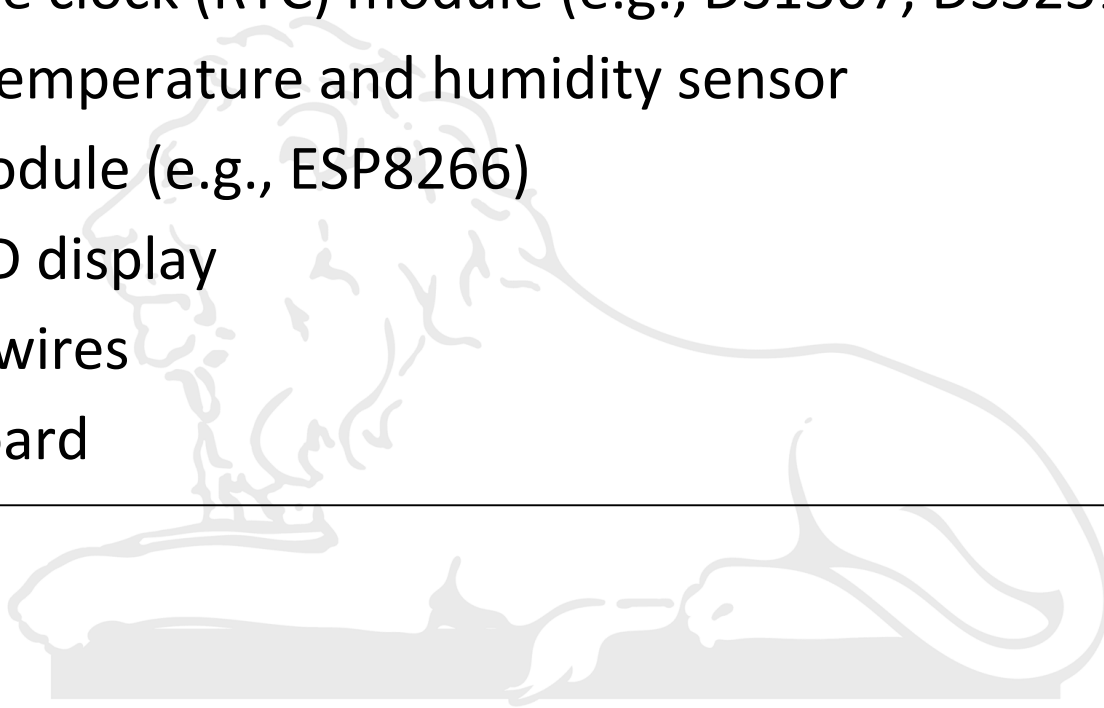
Circuit Diagram

Functionalities Offered

1. Read temperature and humidity values: The system should be able to read temperature and humidity values from a DHT11 sensor connected to the Arduino board.

2. Read time from an RTC module :The system should be able to read the current time from an RTC module connected to the Arduino board.

3. Get time updates from the NTP Server API: The system should be able to connect to the NTP Server API using a Wi-Fi module and periodically get the current time.

4. Get temperature and humidity updates from OpenWeatherMap: The system should be able to connect to the OpenWeatherMap API using a Wi-Fi module and periodically get the current temperature and humidity values.

5. Display values on an LCD screen: The system should be able to display the current time, temperature, and humidity values on a 16x2 LCD screen connected to the Arduino board.

Functionalities Offered

6. Send data to an IoT dashboard: The system should be able to send the current time, temperature, and humidity values to an IoT dashboard for remote monitoring and analysis. The IoT dashboard should be able to display the values in a graphical format

7. Update values periodically: The system should be abBy accomplishing the above objectives, this project will enable the user to monitor the current time, temperature, and humidity values remotely, making it useful for a range of applications, including home automation, weather monitoring, and indoor climate control.

8. To update the current time, temperature, and humidity values periodically (e.g., every 10 seconds) on the LCD screen and IoT dashboard.

Project Demo

Project demo link:- (Paste the link in the browser)

https://drive.google.com/file/d/1rgvniO2nQX7hrrYDH52v-I6VygU7i6rx/view?usp=drivesdk
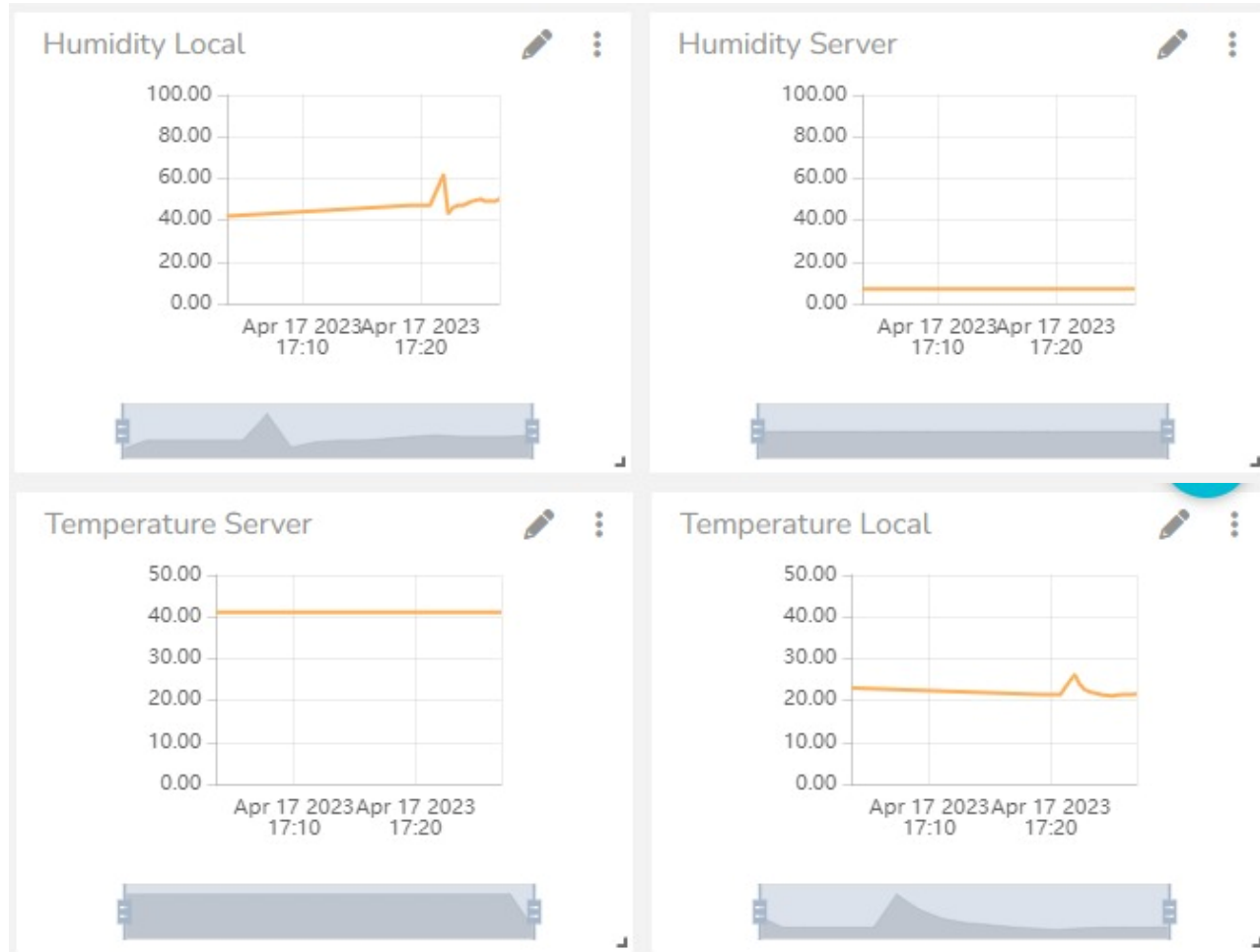
Results (Serial Monitor)

```
.......WiFi connected
IP address:
172.20.10.2
rtc adjusted to iso8601dateTime: 2023-04-17 17:18:42
Requesting for Weather to URL: /data/2.5/weather?lat=27.18&lon=78.01&units=metric&appid=9d194613b506b3d7775f5c825b0318b2
Temperature Server: 41.10 °C
Humidity Server: 7.00 RH
Temperature Local: 21.40 °C
Humidity Local: 47.00 RH
Time rtc: 17:18:52
Date rtc: 17/4/2023
----------
payload:
{"temperatureLocal":{"value":21.399999618530273},"temperatureServer":{"value":41.099998474121094},"humidityLocal":{"value":47},"humidityServer":{"value":7}}
----------

Sending data...
Values sent by the device
```

Results (Dashboard)

Thank You