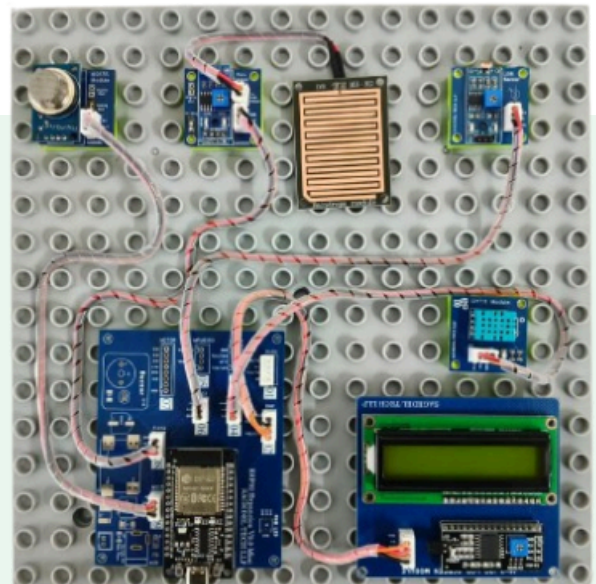


WEATHER MONITORING STATION

Real-Time Weather Monitoring

2026



WEAHER MONITORING STATION

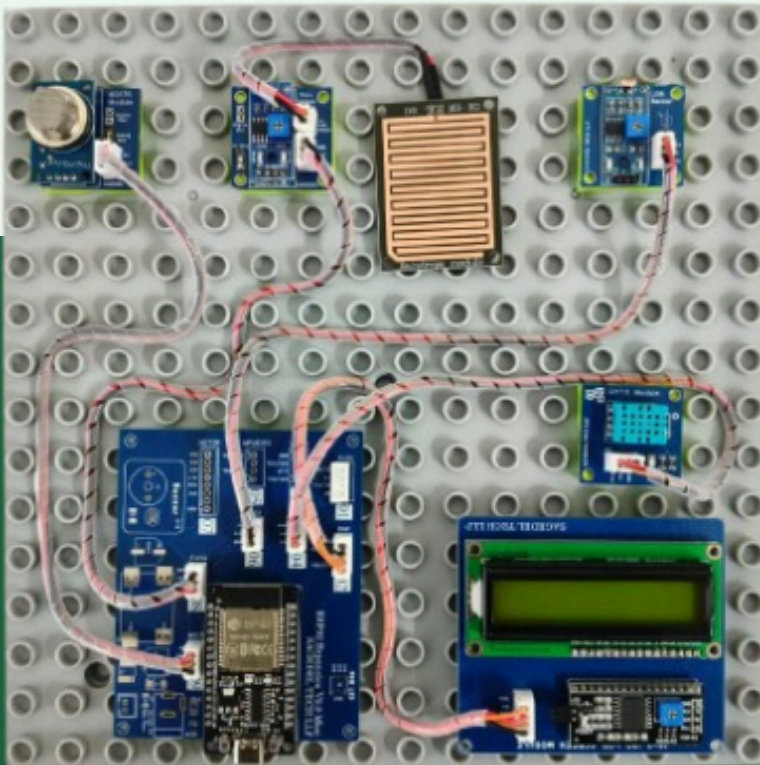


Objective:

To monitor weather and environmental conditions in real time using various sensors and display the readings on an LCD screen.

What it Does:

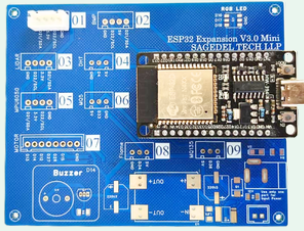
The Weather Monitoring Station continuously reads temperature, humidity, air quality, light intensity, and rainfall data from the connected sensors. The microcontroller processes this data and displays it instantly on the LCD screen, allowing users to view current environmental conditions at a glance.



LCD Screen Interface

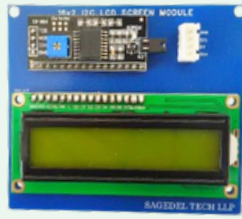


Modules & Components used:



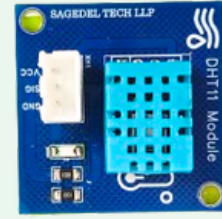
ESP32 Expansion V3.0 Mini

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection



I2C LCD Screen Module

- Operates on 5V Supply Voltage
- Built-in Contrast Adjustment via Potentiometer
- Displays Real-Time Sensor Readings (Temperature, Humidity, Gas Level, Rain Status)



DHT11 Module

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- Compact and Lightweight Design, Easy to Mount
- Long-Term Stability with Minimal Signal Drift



Rain Sensor

- Supports ESP32 development boards
- ~200mm Cable Size
- Suitable for Programming and Power Delivery



MQ135

- Provides Both Analog and Digital Output
- Adjustable Sensitivity via Onboard Potentiometer
- Operates on 5V Voltage



LDR Sensor

- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- AC Downlight 5W/10W
- 240V 50Hz Power Input



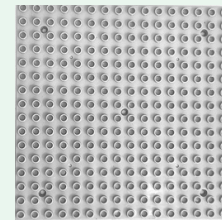
Type C USB Cable

- Supports ESP32 development boards
- ~200mm Cable Size
- Suitable for Programming and Power Delivery



JST Connecting Wires

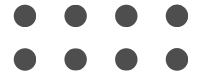
- Supports ESP32 development boards
- JST Based Connectors and Cables for Easy and Strong Connection
- Compact and Lightweight Design, Easy to Mount
- Long-Term Stability with Minimal Signal Drift



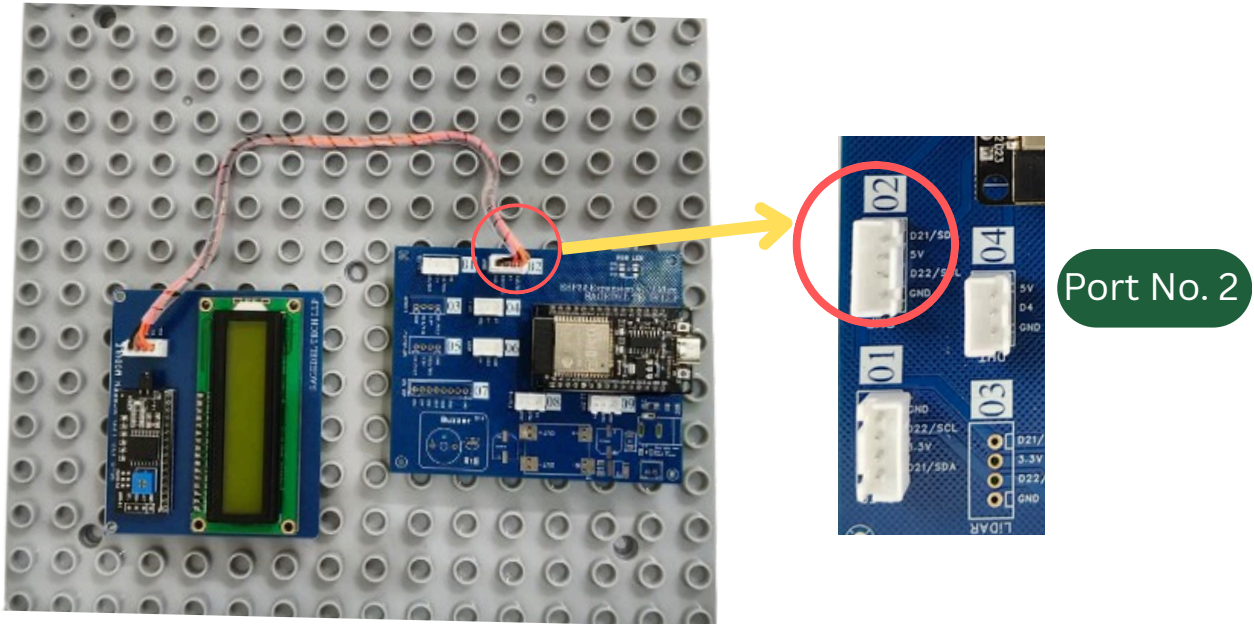
Lego Base

- ~25 cm x 25 cm Base
- Compatible with Provided Modules
- Mounting Holes are provided for Easy Showcasing

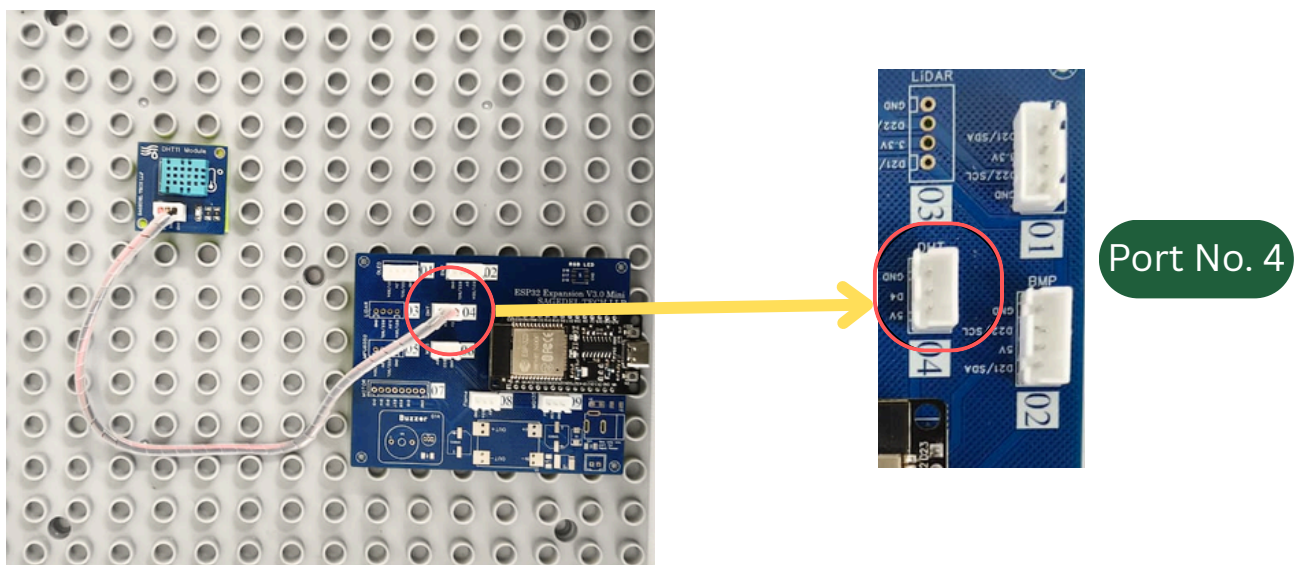
Connections:

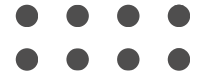


1. Connect the **LCD** Display Module to **Port No. 2** on the ESP32 Expansion Board.

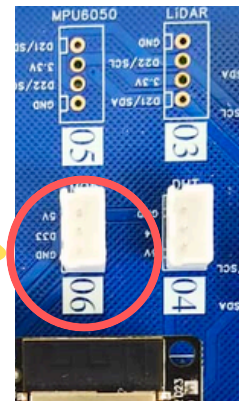
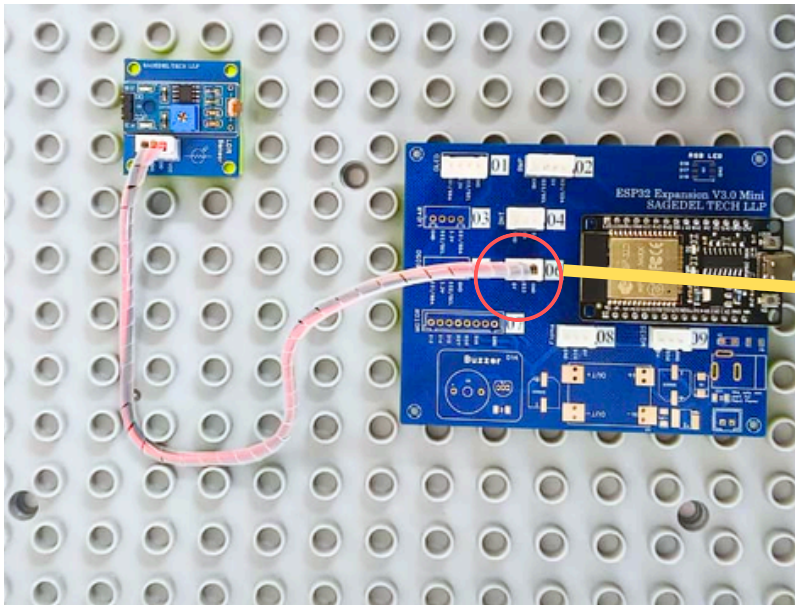


2. Connect the **DHT11** Module to **Port No. 4** on the ESP32 Expansion Board.



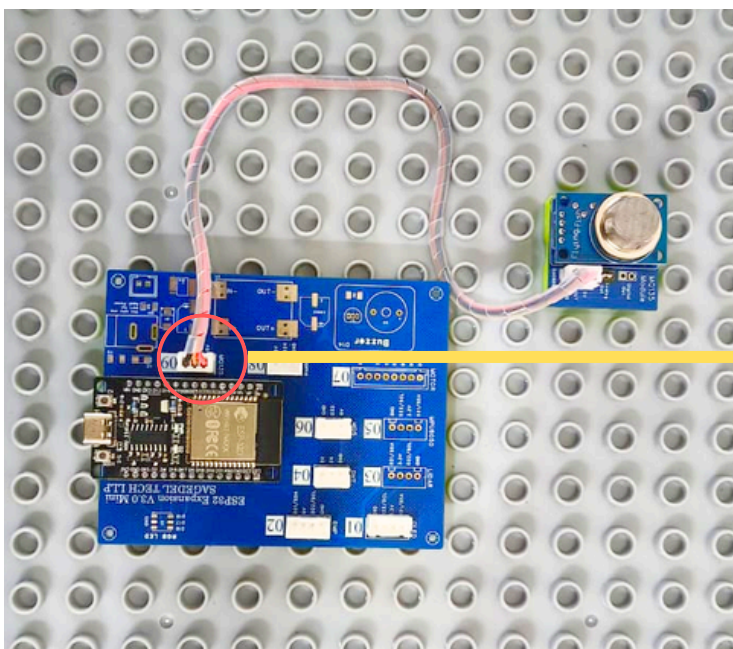


3. Connect the **LDR Sensor** to **Port No. 6** on the ESP32 Expansion Board.

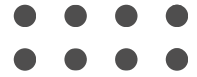


Port No. 06

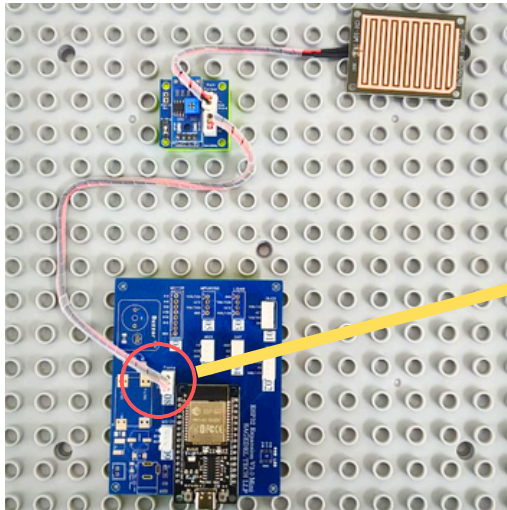
4. Connect the **MQ-135** Module to **Port No. 9** on the ESP32 Expansion Board.



Port No. 09



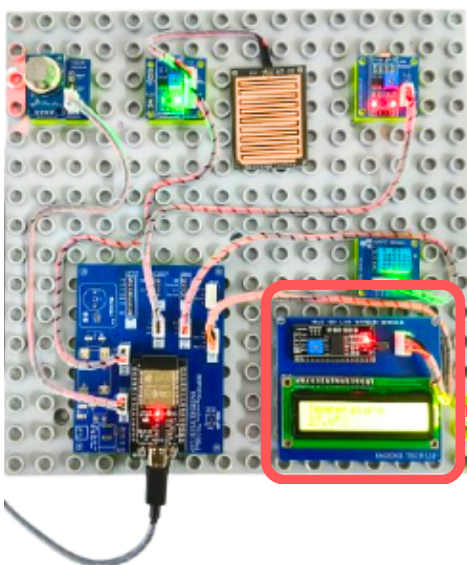
5. Connect the **RAIN Sensor** to **Port No. 8** on the ESP32 Expansion Board.



Port No. 08

EXPECTED OUTPUT:

Let the system powered on for atleast 10-15 minutes to let the sensors stabilize.



Rain No Rain
Temperature 27.6°C
Humidity 47%
Light Day
Air Quality Hazardous