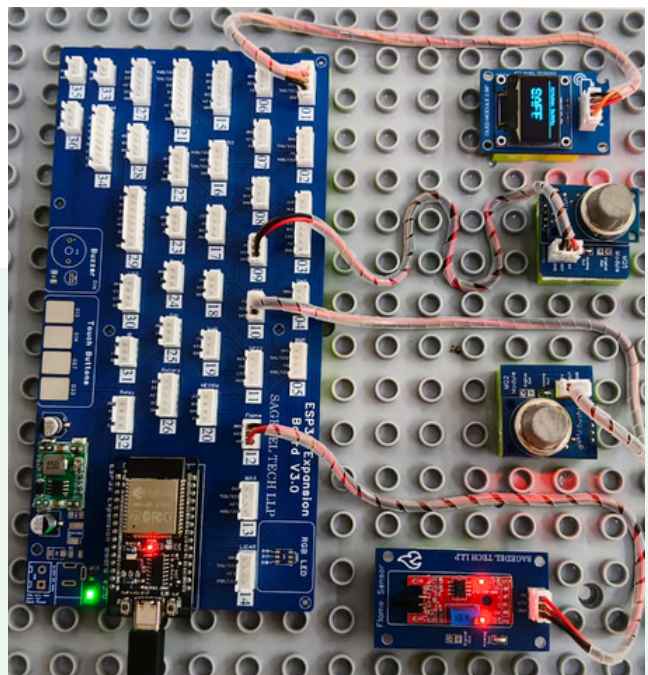


KITCHEN SAFETY SYSTEM

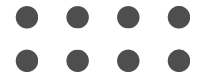
Kitchen Safety Monitor — Real-Time Hazard Detection & Alert Module

2026



KITCHEN SAFETY SYSTEM

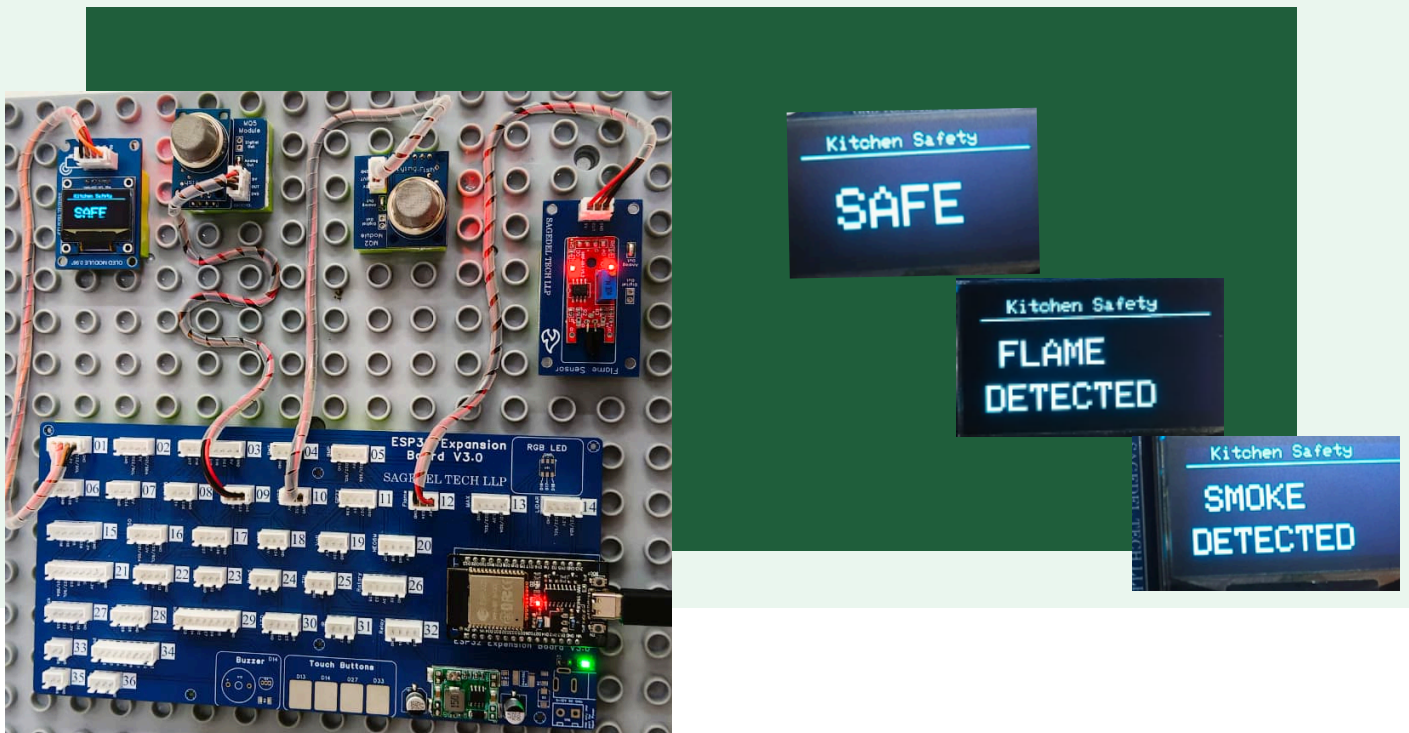
Objective:



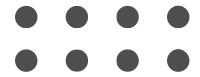
To connect gas, smoke, and temperature sensors to a microcontroller to continuously monitor kitchen conditions in real time, enabling instant hazard detection and automatic alerts without human supervision.

What it Does:

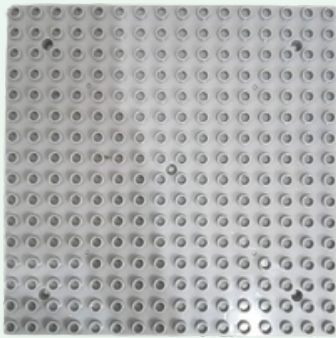
The system continuously monitors for gas leaks, fire, smoke, and unattended cooking using sensors, and instantly alerts users (via oled/buzzer) so they can respond before a small hazard turns into a fire or explosion.



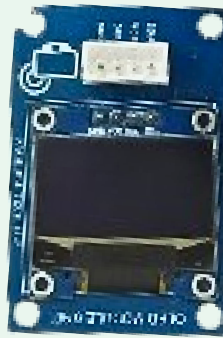
Modules & Components used:



ESP32 Epanxion Board



Lego Board



OLED Module



Flame Sensor



MQ - 5



MQ - 2



USB Cable



JST Cables

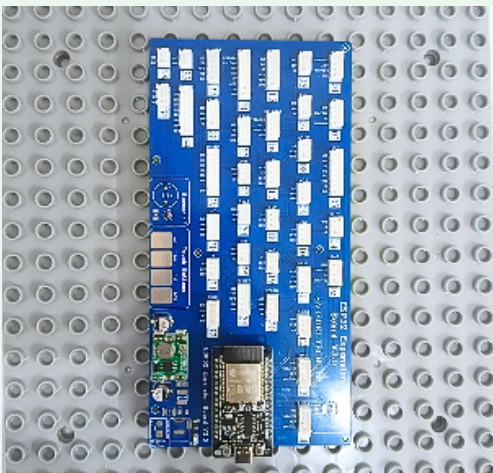


Step-by-Step Assembly & Connections

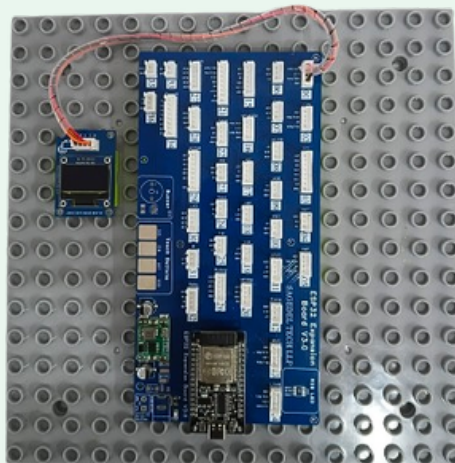
Step 1: Mount the ESP32 Expansion Board onto the Lego baseplate and secure it firmly in position.

Step 2: Connect the **OLED display** to the **I2C pins (SDA-21, SCL-22)**, and mount it at the front for easy viewing.

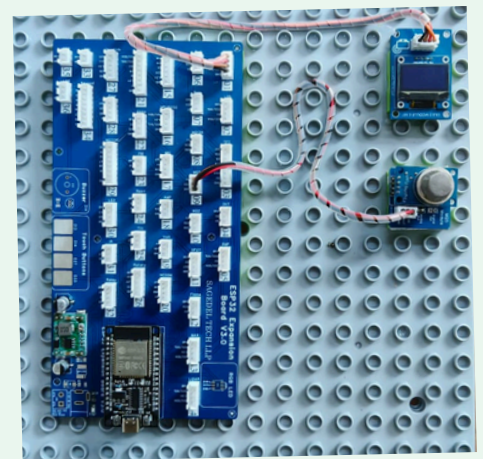
Step 3: Connect the **MQ5 gas sensor** to **Port no. 33**, and mount it near the stove area.



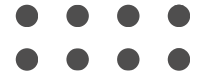
Step 1:



Step 2:



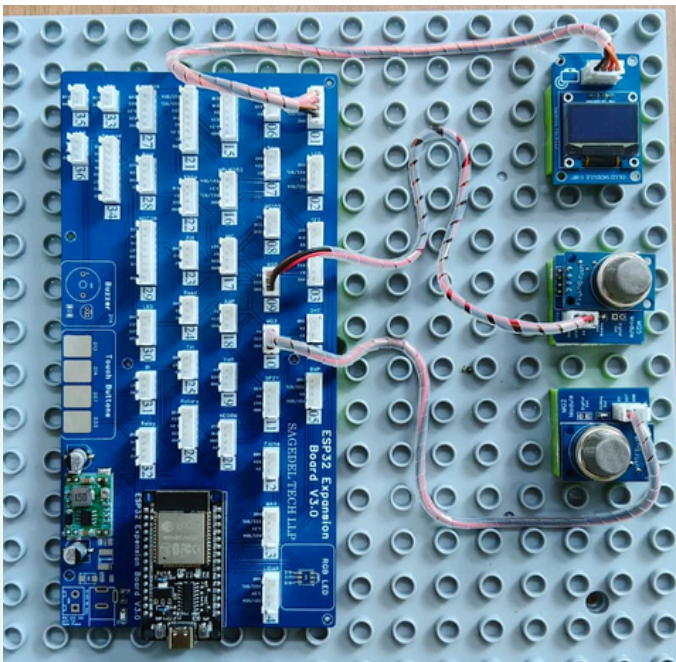
Step 3:



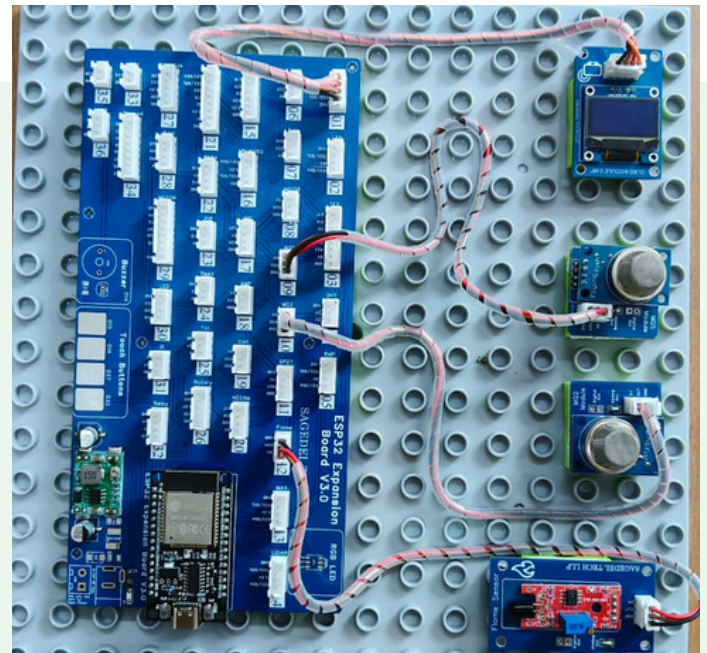
Step-by-Step Assembly & Connections

Step 4: Connect the **MQ2 smoke sensor** to **Port No. 32**, and mount it above the cooking zone.

Step 5: Connect the **flame sensor** to **Port No. 34**, and position it facing the burner directly.

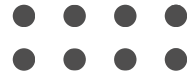


Step 4:

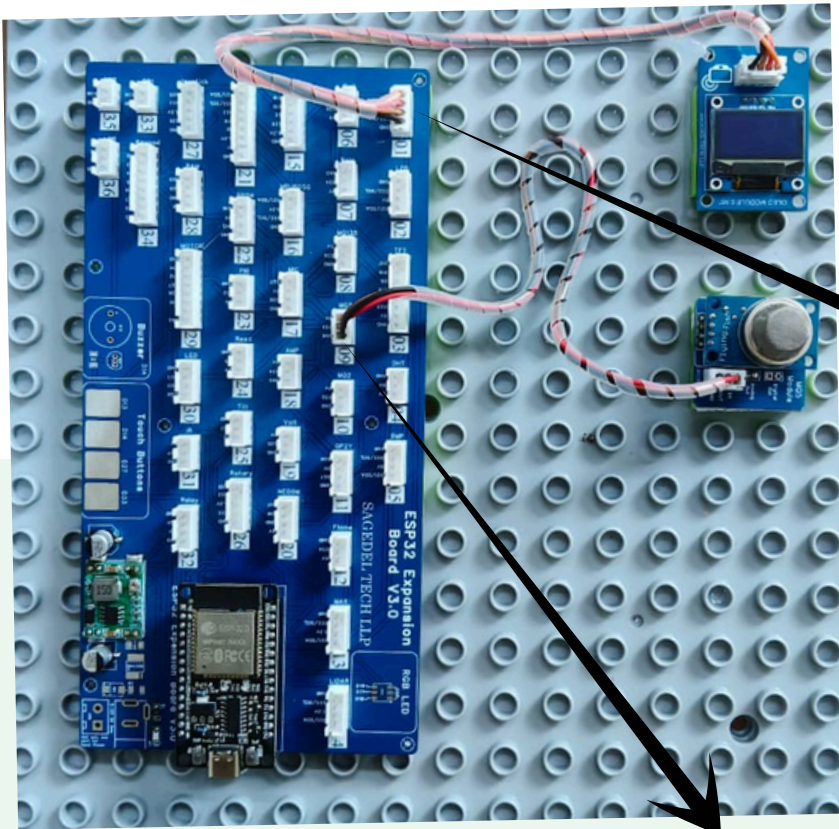


Step 5:

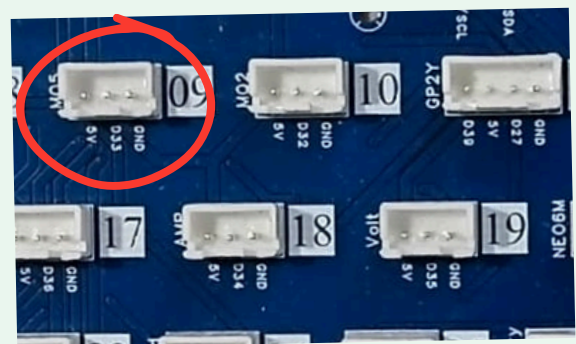
Specific Port Connections



- **OLED Module** → Connect it to **Port No. 01**
- **MQ-5 Module** → Connect it to **Port No. 09**

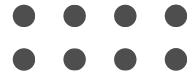


Connect the OLED Module to Port No. 1

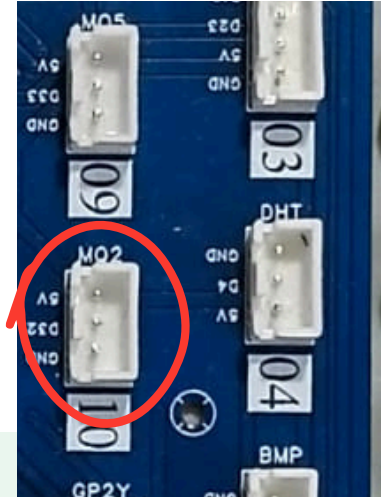
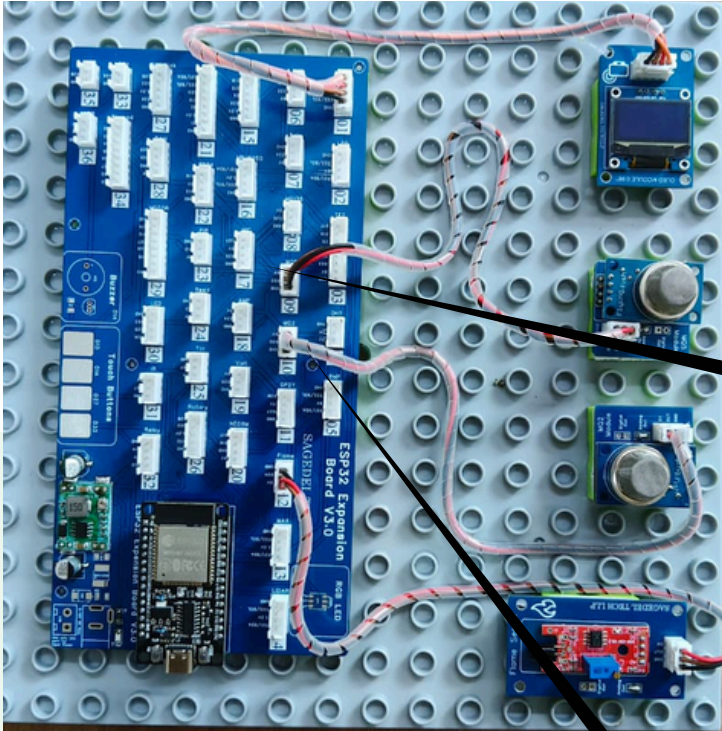


Connect the MQ - 5 to Port No. 09

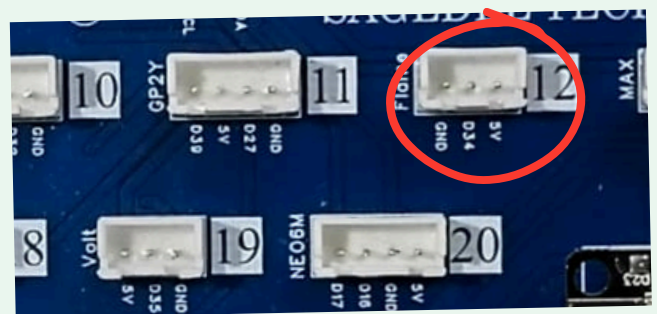
Specific Port Connections



- **MQ-2 Module** → Connect it to **Port No. 10**
- **Flame Sensor** → Connect it to **Port No. 12**

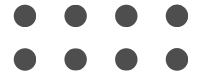


Connect the MQ - 2 to
Port No. 10

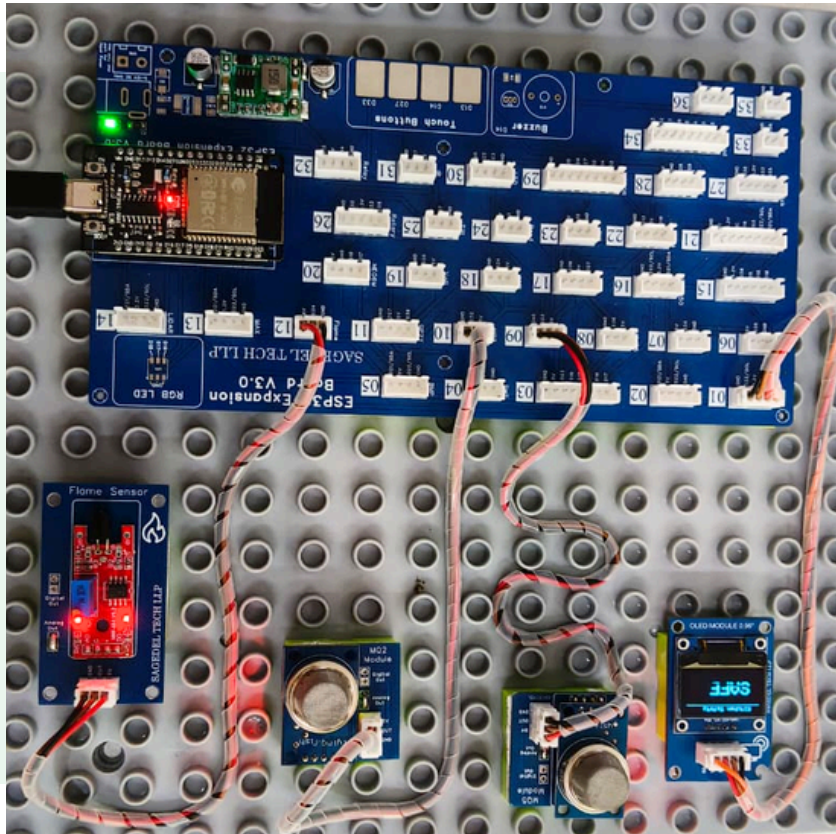


Connect the Flame Sensor to
Port No. 12

Final Cable Management



- Bundle all loose wires neatly using spiral wraps or cable ties, keeping them secured flat against the baseplate.



Calibration:

Power on the board and calibrate the gas, smoke, and flame sensors by allowing them to warm up and stabilize until a consistent baseline reading is achieved; verify the OLED display is correctly showing the live SAFE/hazard status.