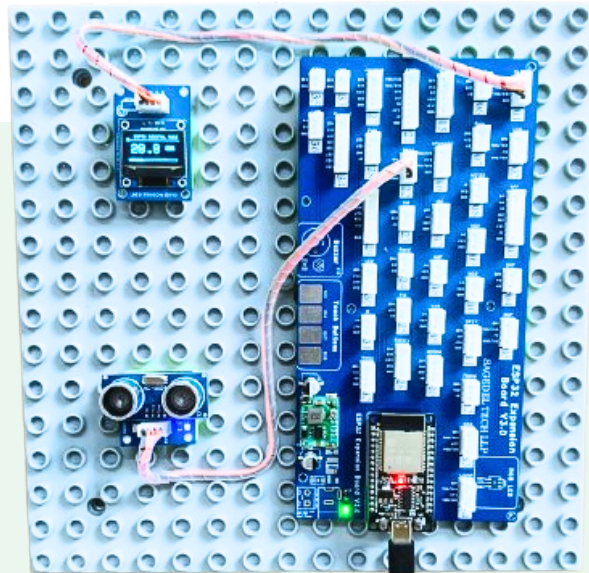


DIGITAL RULER

Digital Ruler — Real-Time Distance Measurement Module

2026



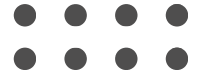
Phone
9958007460



Website
www.sagedel.com

DIGITAL RULER

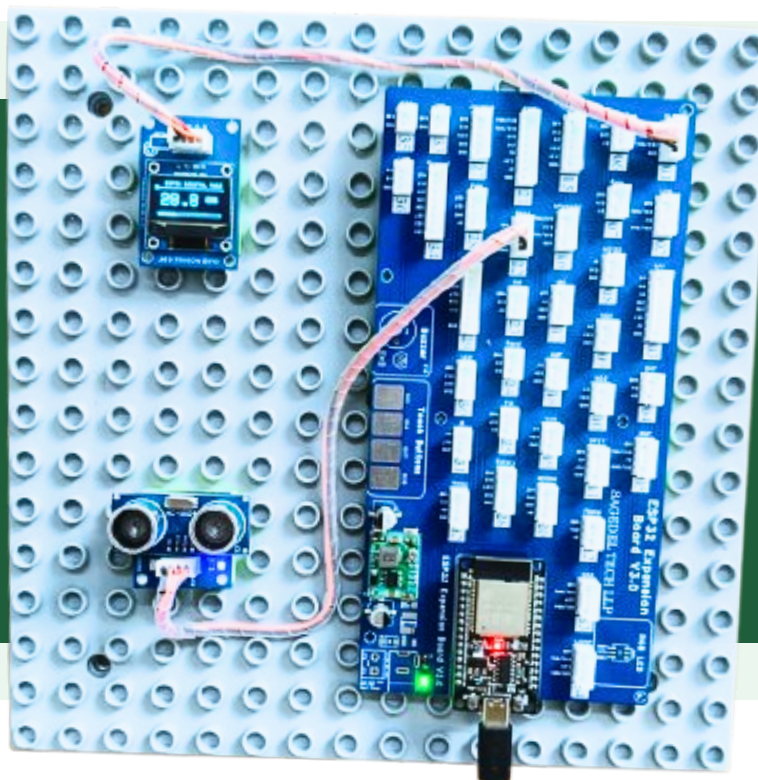
Objective:



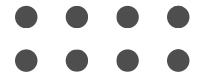
Learn how to interface an ultrasonic sensor and OLED display with an ESP32 to measure distance accurately and display the measurement in real time as a digital ruler.

What it Does:

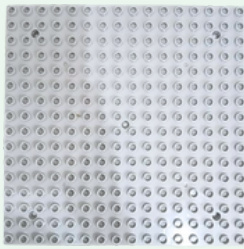
The ESP32 continuously reads the ultrasonic sensor to calculate the distance of an object. The measured distance is displayed in centimeters on the OLED screen, providing a real-time digital measurement.



Modules & Components used:



ESP Expansion Board



Lego board



OLED Module



Ultrasonic Sensor

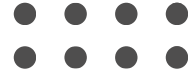


USB cable

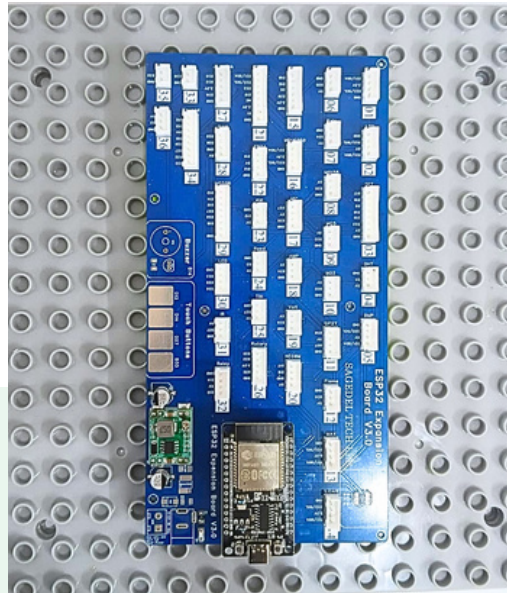


Connector

Step-by-Step Assembly & Connections

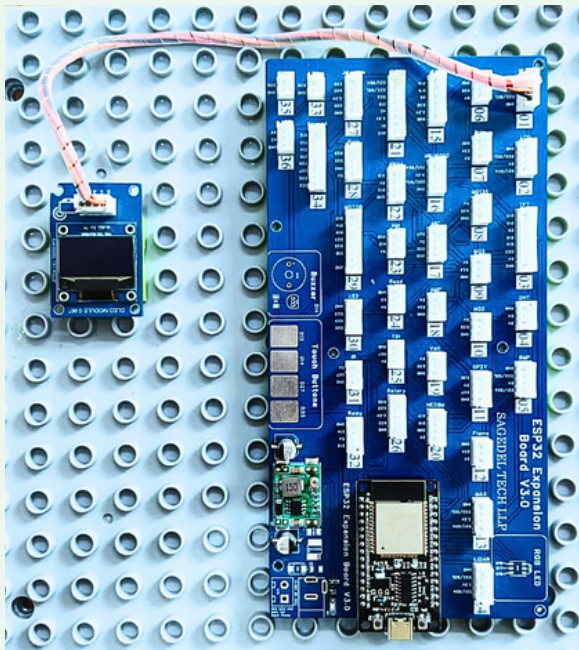


Step 1: Place the ESP32 Expansion Board securely on the lego plate and align it with the mounting holes.

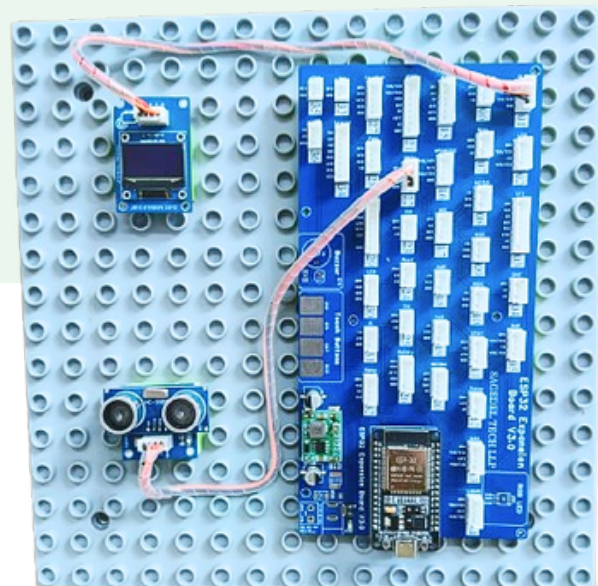


Step 1

Step 2: Connect the OLED Module to **Port No. 01** on the ESP32 Expansion Board.

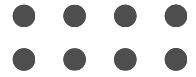


Step 3: Connect the Ultrasonic Sensor to **Port No. 22** on the ESP32 Expansion Board.

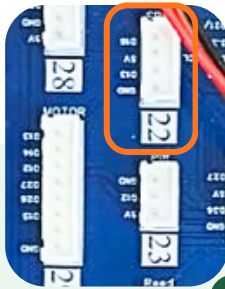


Step 3

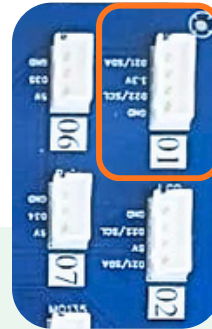
Specific Port Connections



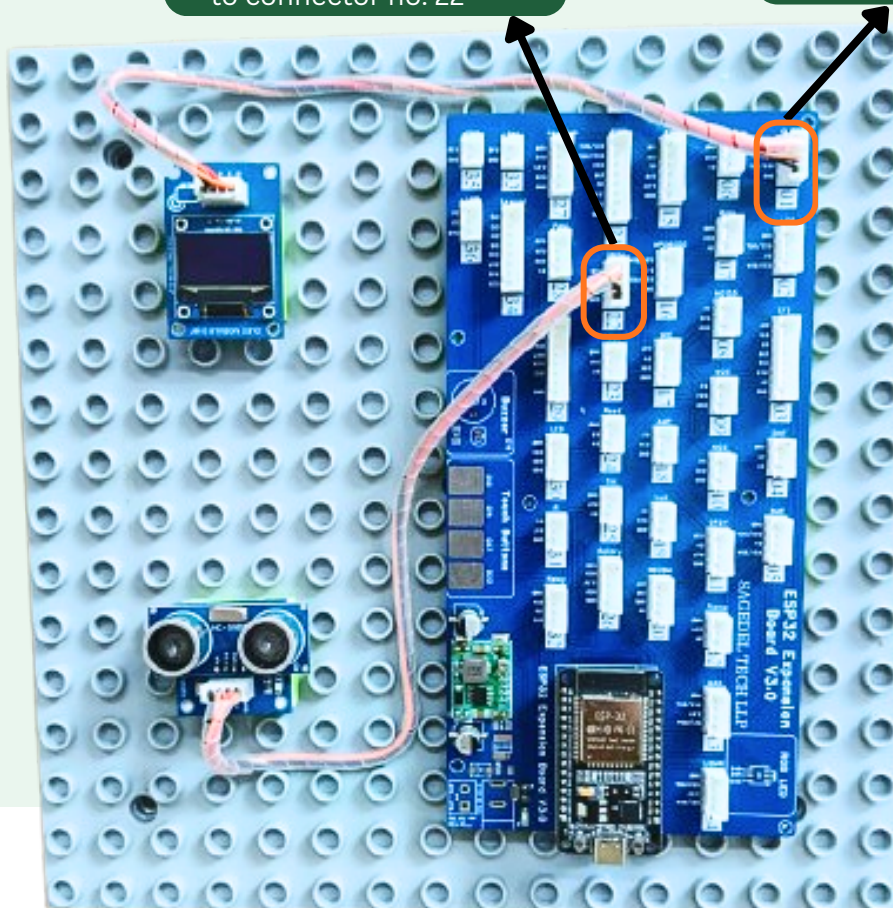
- **ultrasonic** → port no. 22
- **oled** → port no. 1



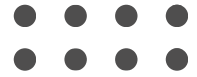
connect ultrasonic sensor
to connector no. 22



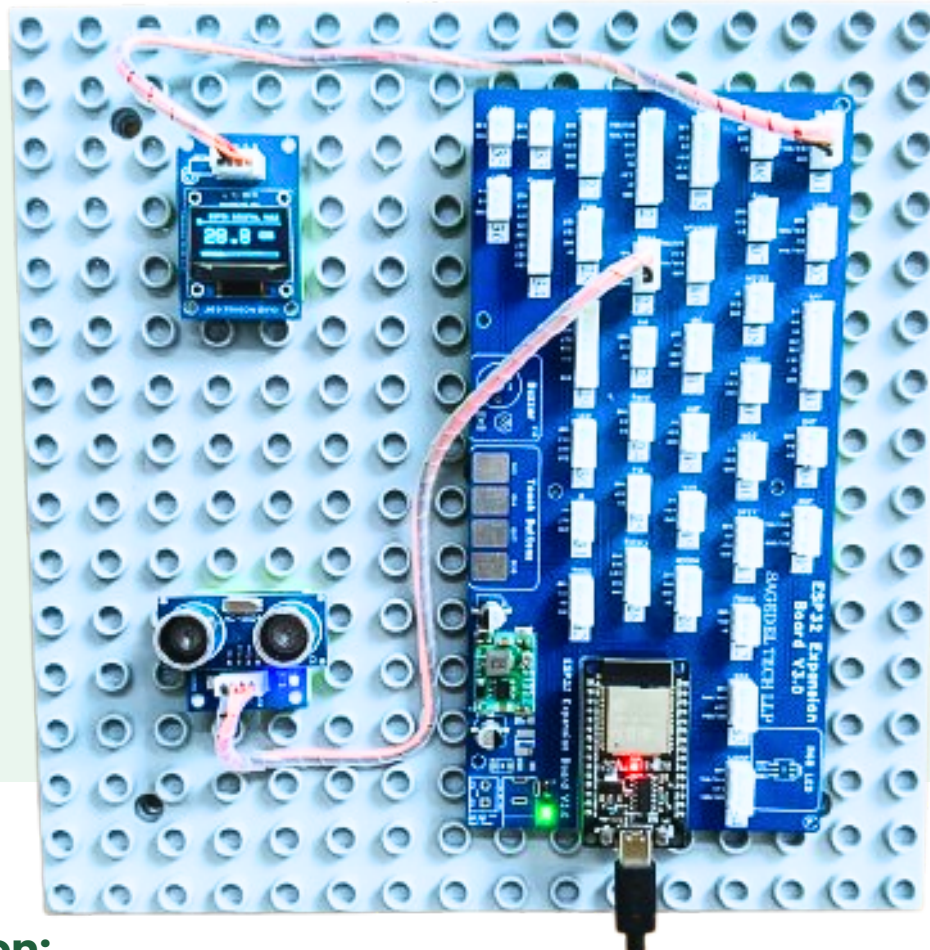
connect oled module to
connector no. 1



Final Management



- Power on the ESP32 and observe the distance measurement on the OLED display. As the distance to the object changes, the measured value updates accordingly and is displayed in centimeters in real time.



Calibration:

It involves measuring the distance to objects using the ultrasonic sensor and displaying the readings in centimeters on the OLED display for distance measurement.