Connecting ESP32 with Ultrasonic Sensor and GPS Module on a Breadboard

Components Required:

1. ESP32 - Microcontroller for data processing.
2. Ultrasonic Sensor (HC-SR04) - For measuring fill levels.
3. GPS Module - To track bin locations.
4. Breadboard - For wiring connections.
5. Jumper wires.

Step-by-Step Connection Guide:

1. Connect the Ultrasonic Sensor (HC-SR04):

- VCC: Connect to the 3.3V or 5V pin on the ESP32.
- GND: Connect to a GND pin on the ESP32.
- TRIG: Connect to a GPIO pin.
- ECHO: Connect to another GPIO pin with a voltage divider if necessary

2. Connect the GPS Module:

- VCC: Connect to the 3.3V or 5V pin on the ESP32.
- GND: Connect to a GND pin on the ESP32.
- TX: Connect to an RX GPIO pin on ESP32.
- RX: Connect to a TX GPIO pin on ESP32.
- 3. Powering the ESP32:
- Connect the ESP32 to your computer or an external power source (5V via USB).

This setup enables the ESP32 to process data from the ultrasonic sensor and GPS module.