TANSAM

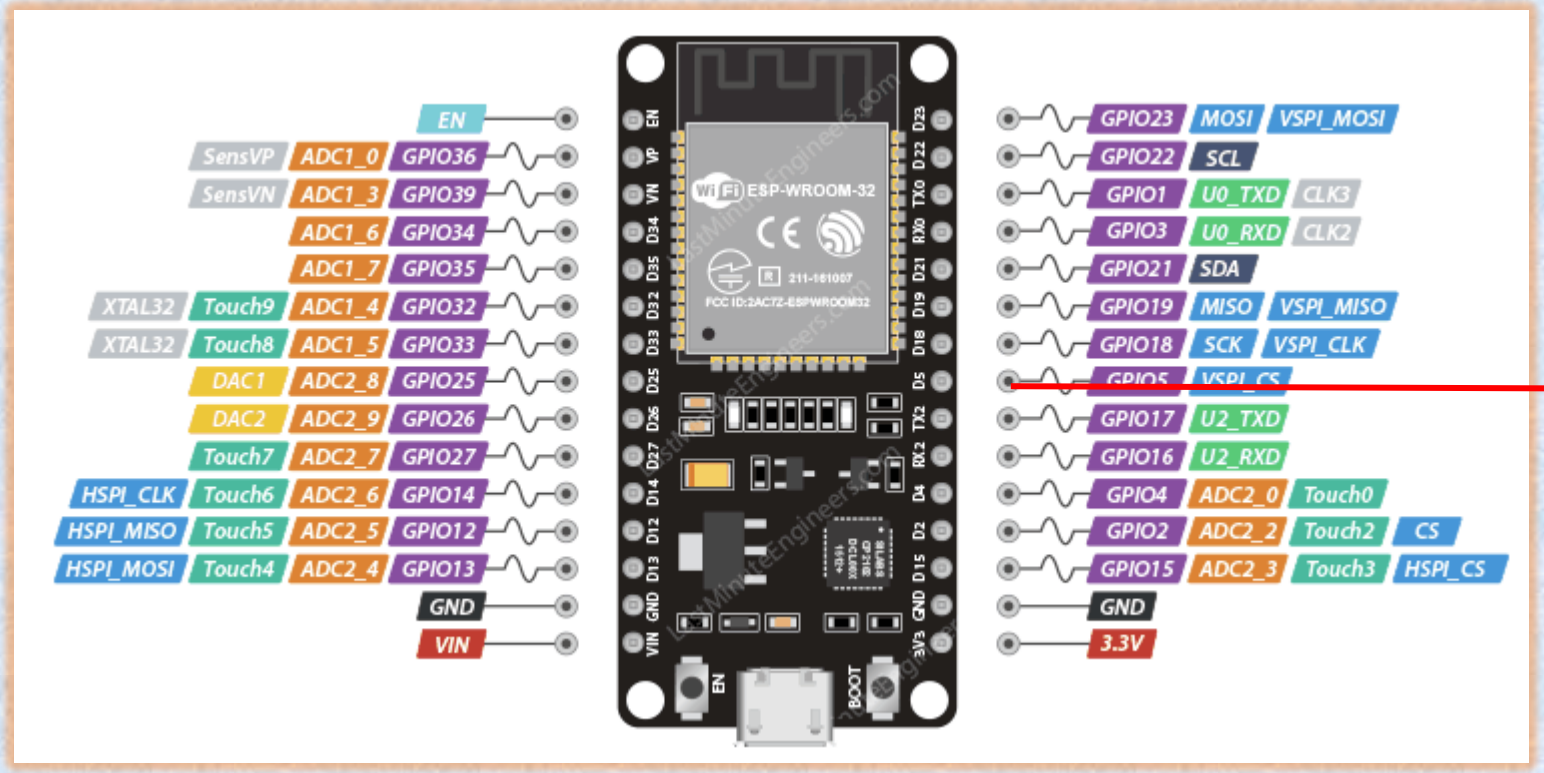
Powered by SIEMENS

Crafting an Automated Door Control System

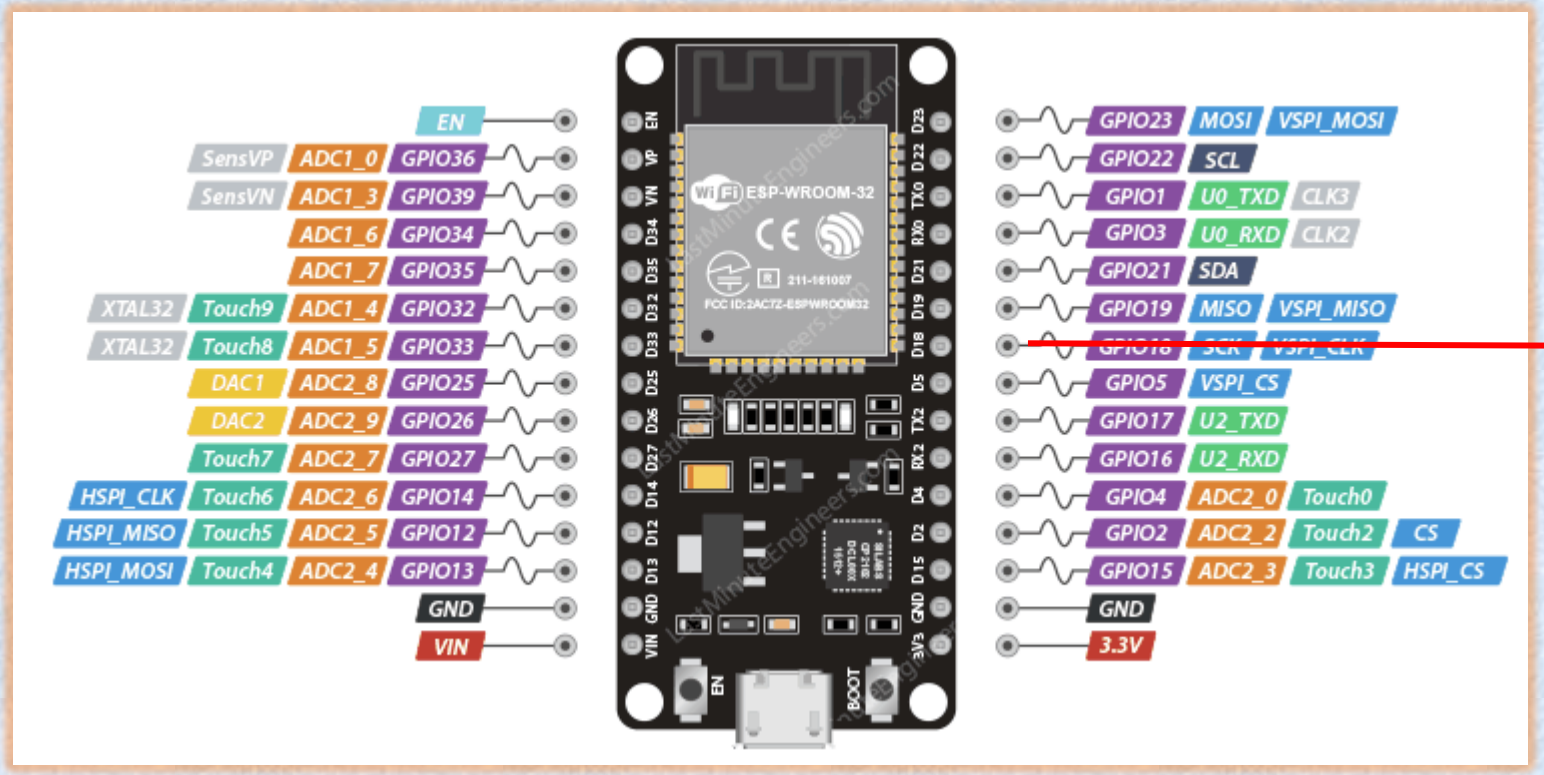
LIST OF COMPONENTS:

1. ESP32 MICROCONTROLLER
2. SERVO MOTOR(SG90)
3. ULTRASONIC SENSOR(HC-SR04)
4. JUMPER WIRES
5. BREAD BOARD

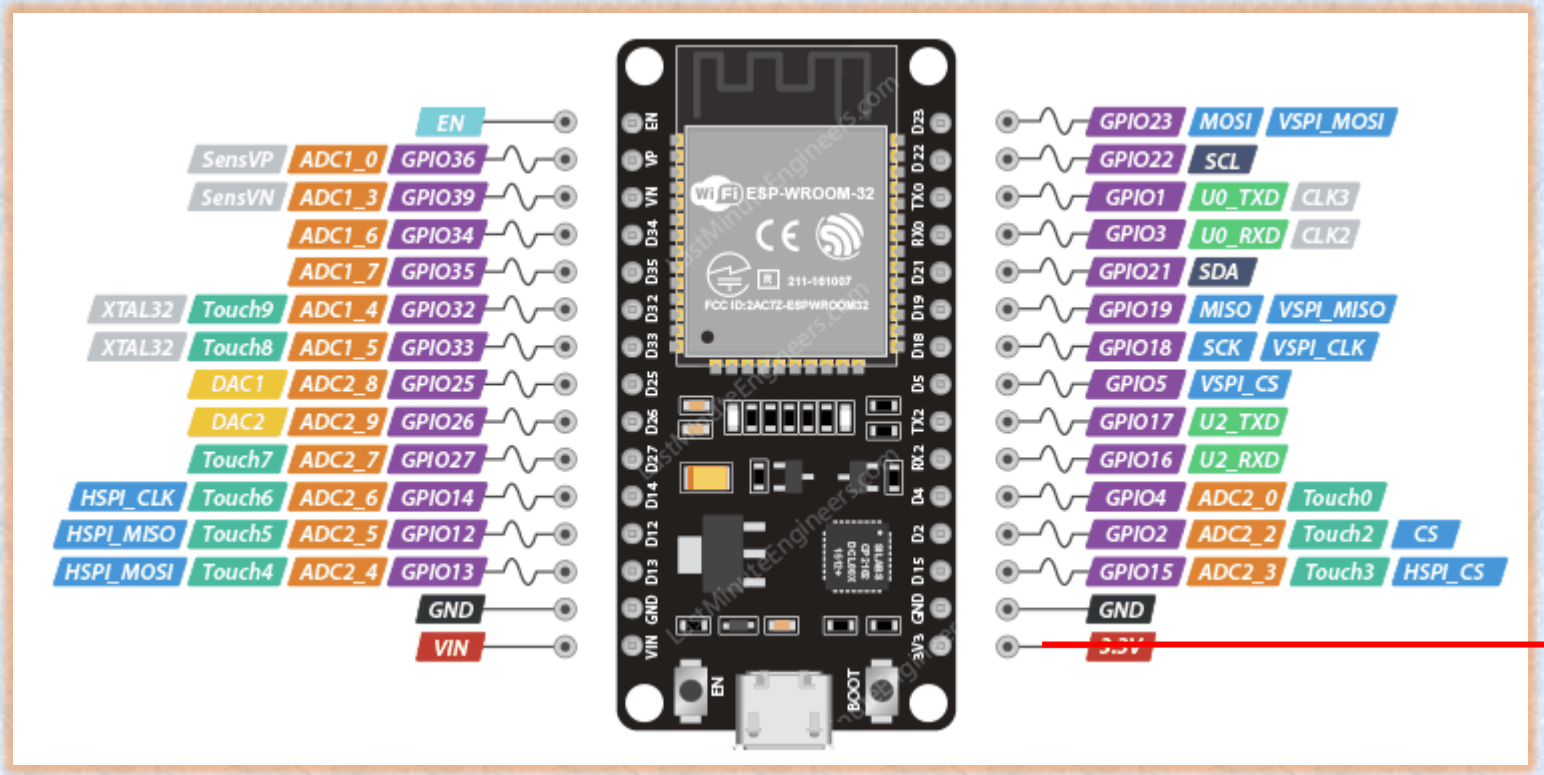
CIRCUIT DAIGRAM:



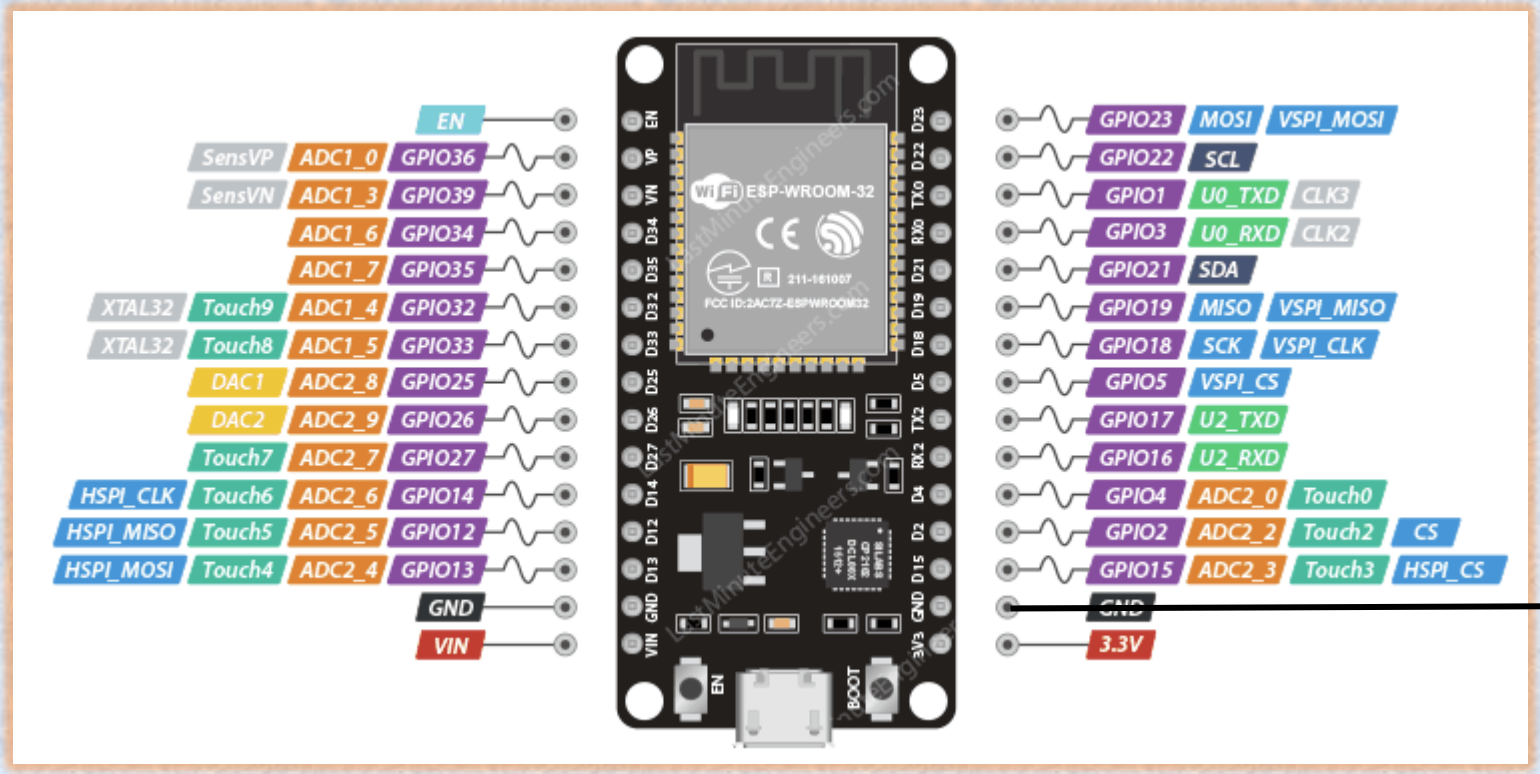
CONNECT TRIG PIN-D5



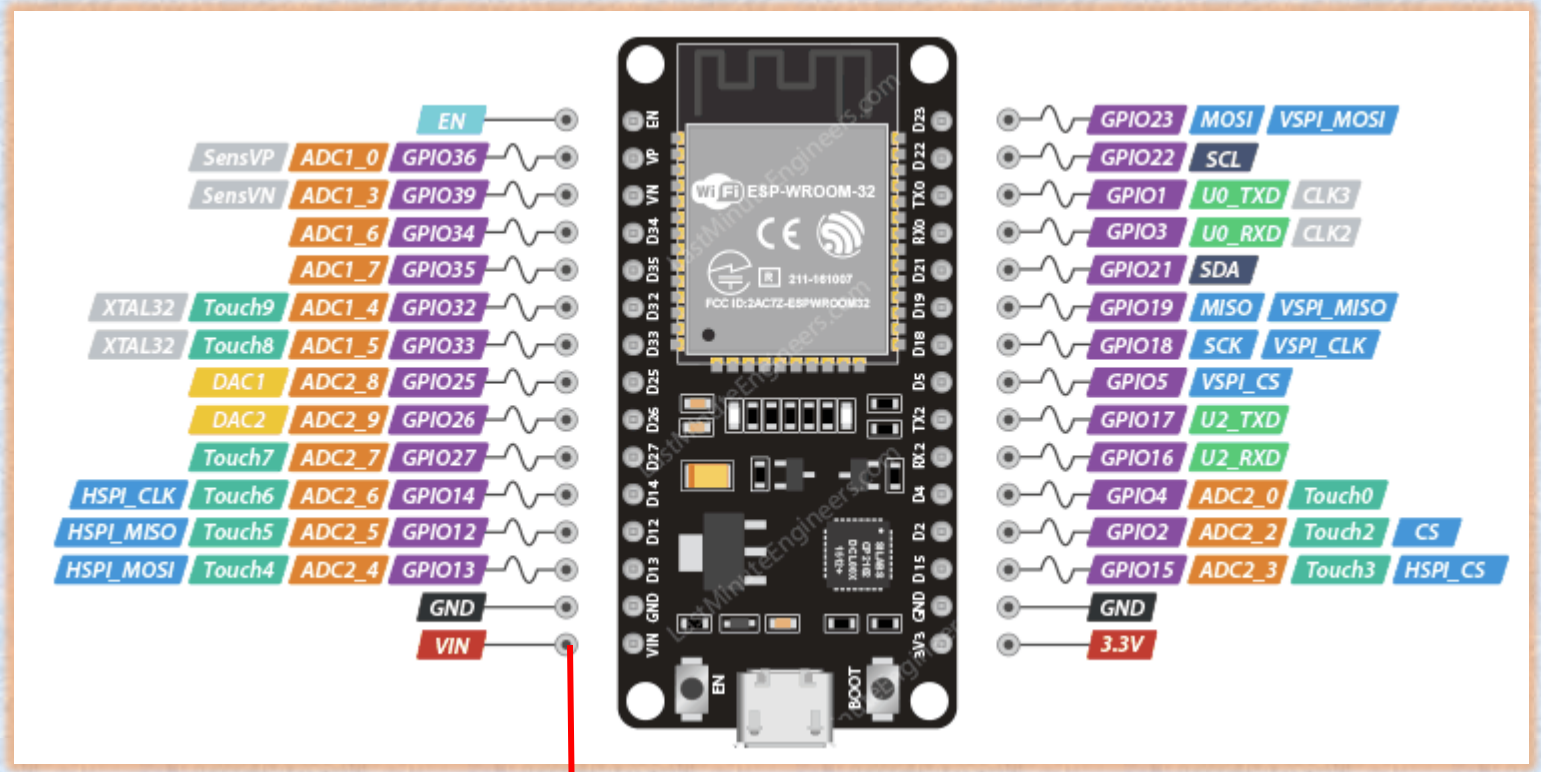
CONNECT ECHO PIN -D18



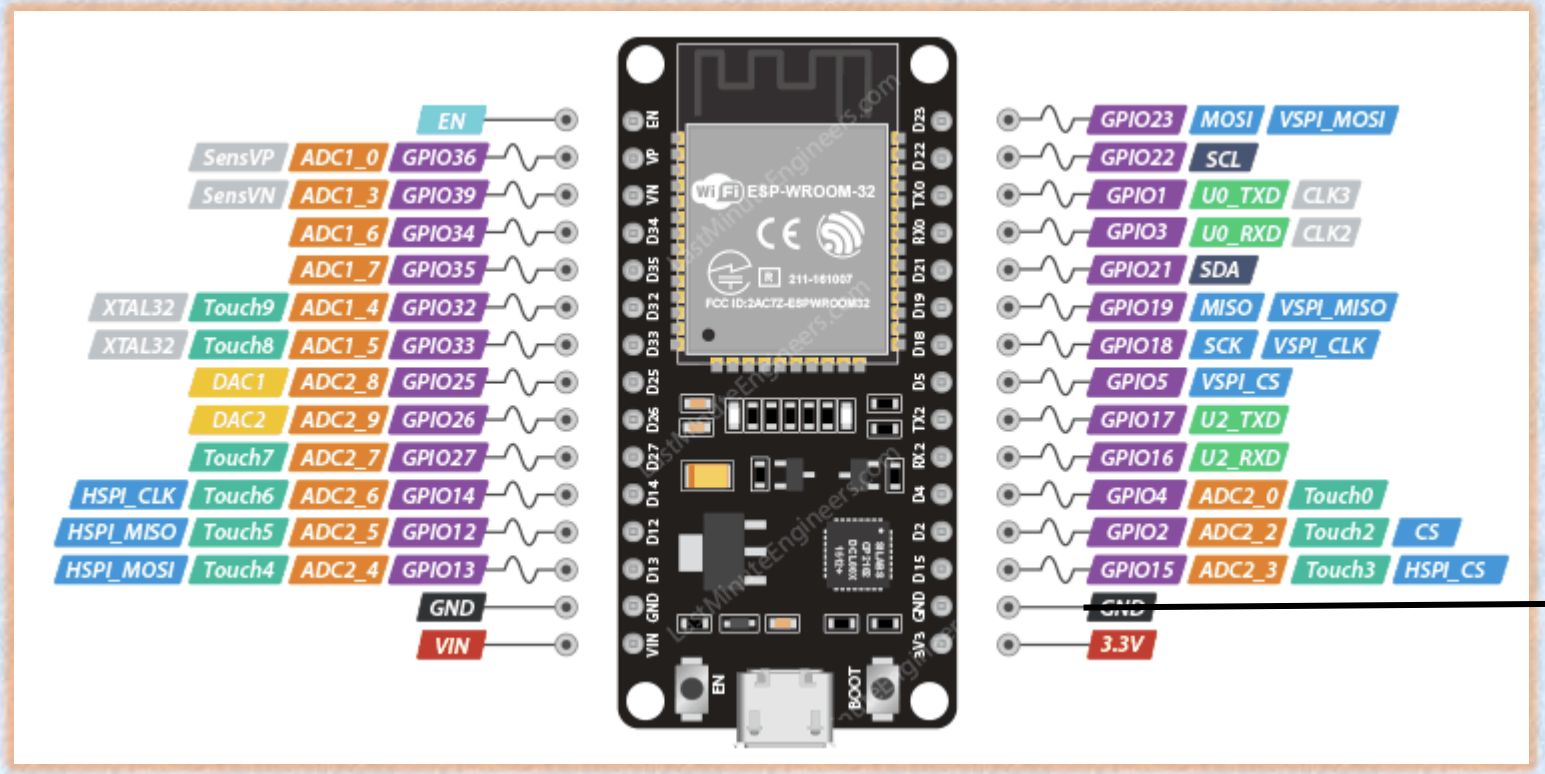
CONNECT VCC-3.3V



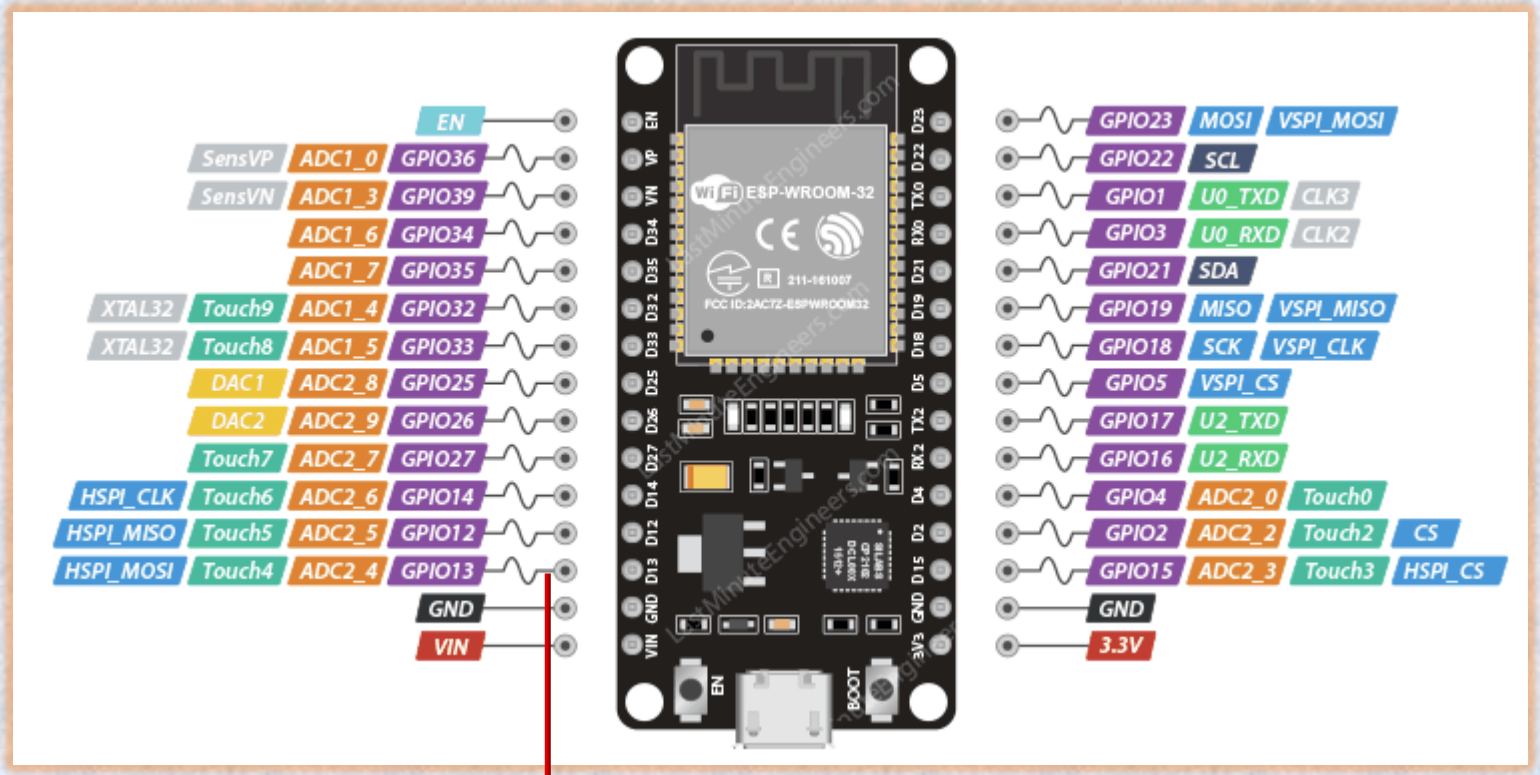
CONNECT GND-GND



CONNECT RED WIRE-VIN



CONNECT BLACK WIRE-GND



CONNECT YELLOW WIRE-D13

CODE:

CONTINUE

```
#include <ESP32Servo.h>
Servo myservo;
const int trigPin = 5;
const int echoPin = 18;
const int servoPin = 13;
const int doorOpenAngle = 90;
const int doorCloseAngle = 0;
const int distanceThreshold = 30;
void setup() {
  myservo.attach(servoPin);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  Serial.begin(115200);
}
void loop() {
  long duration, distance;
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
digitalWrite(trigPin, LOW);
 duration = pulseIn(echoPin, HIGH);
 distance = duration * 0.034 / 2;
 Serial.print("Distance: ");
 Serial.print(distance);
 Serial.println(" cm");
 if (distance <= distanceThreshold) {
  Serial.println("Obstacle detected, opening
door!");
  myservo.write(doorOpenAngle);
 } else {
  Serial.println("No obstacle, closing door!");
  myservo.write(doorCloseAngle);
 }
 delay(1000);
}
```

STEP 1

Copy code paste in Arduino new Sketch

SERVOULTRA | Arduino IDE 2.3.2

File Edit Sketch Tools Help

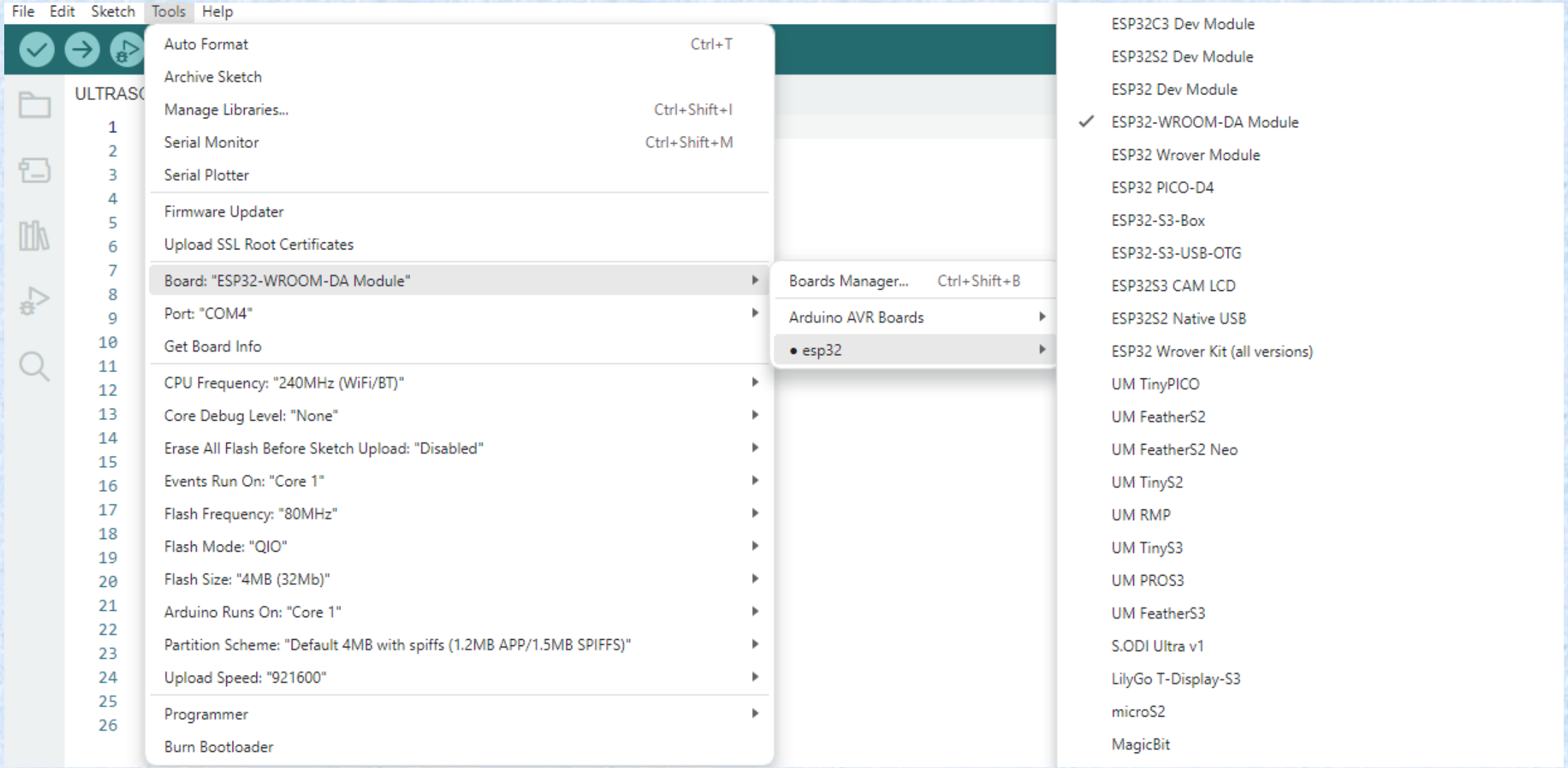
ESP32-WROOM-DA M...

SERVOULTRA.ino

```
#include <ESP32Servo.h>
Servo myservo;
const int trigPin = 5;
const int echoPin = 18;
const int servoPin = 13;
const int doorOpenAngle = 90;
const int doorCloseAngle = 0;
const int distanceThreshold = 30;
void setup() {
  myservo.attach(servoPin);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  Serial.begin(115200);
}
void loop() {
  long duration, distance;
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration * 0.034 / 2;
  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");
  if (distance <= distanceThreshold) {
    Serial.println("Obstacle detected, opening door!");
```

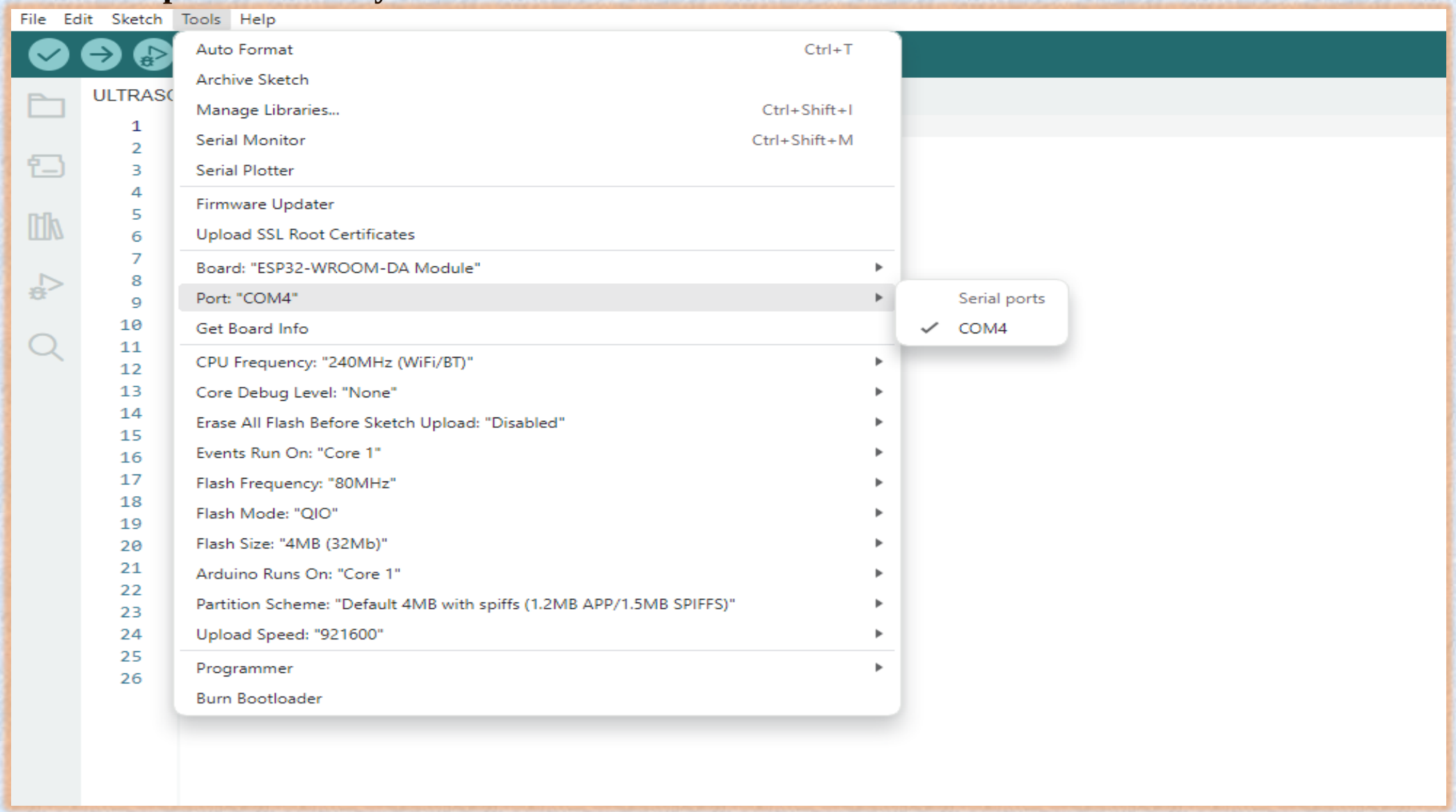
STEP 2

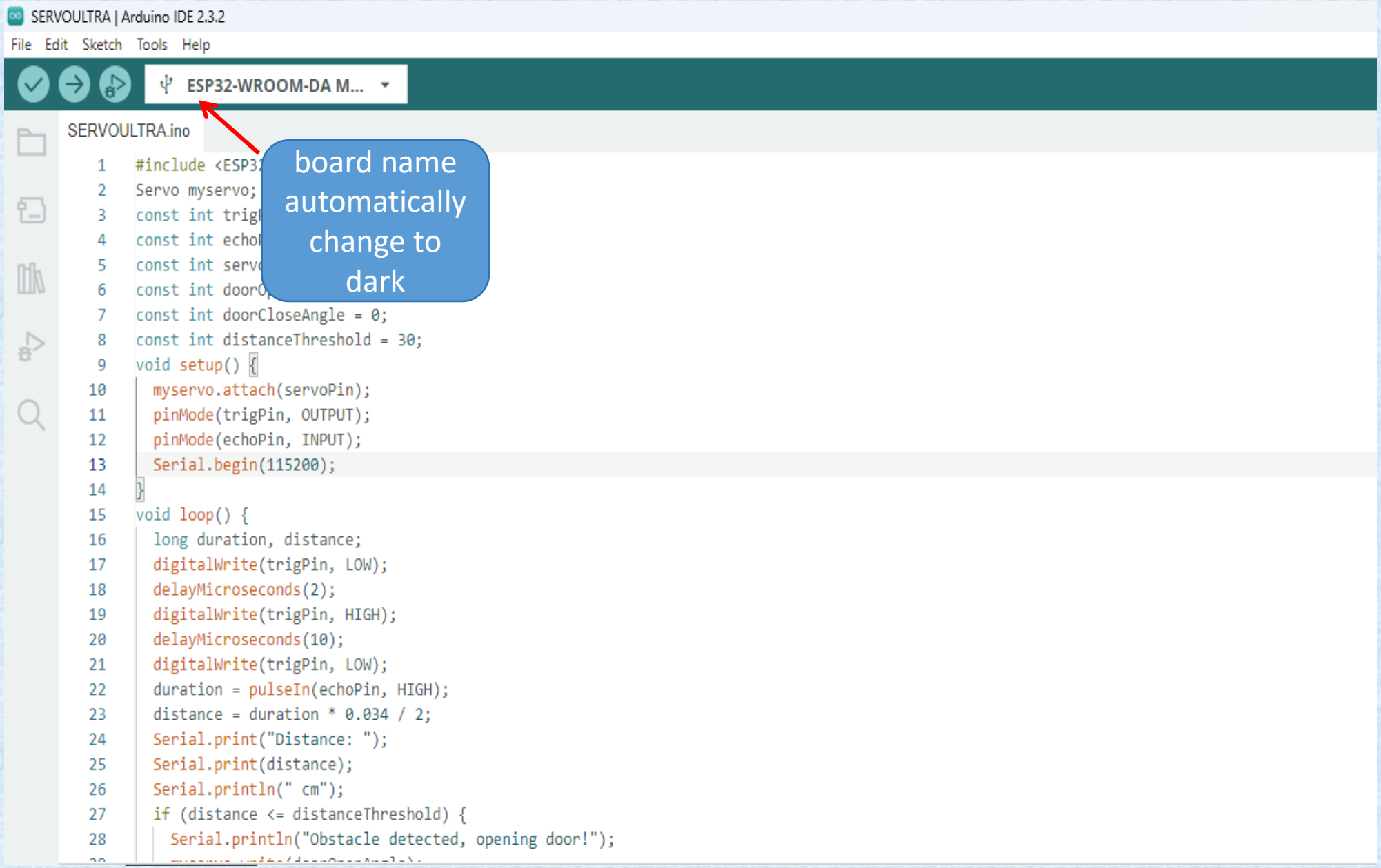
Board---->esp32---->esp32-wroom-DA module

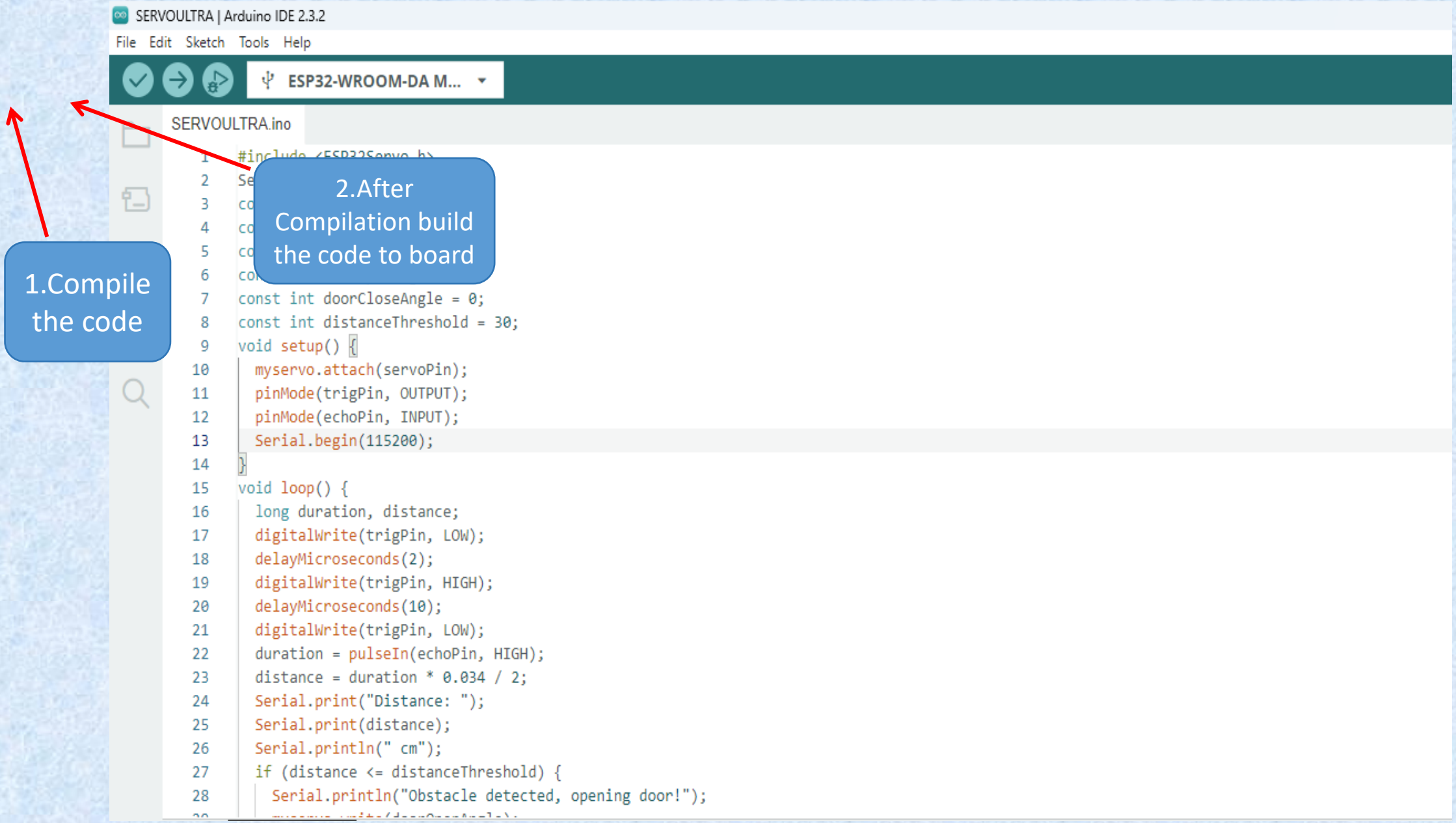


STEP 3

Tools---->port---->select your com




SERVOULTRA | Arduino IDE 2.3.2
File Edit Sketch Tools Help
ESP32-WROOM-DA M...
SERVOULTRA.ino
board name automatically change to dark
#include <ESP3
Servo myservo;
const int trig
const int echo
const int serv
const int door
const int doorCloseAngle = 0;
const int distanceThreshold = 30;
void setup() {
myservo.attach(servoPin);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
Serial.begin(115200);
}
void loop() {
long duration, distance;
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = duration * 0.034 / 2;
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
if (distance <= distanceThreshold) {
Serial.println("Obstacle detected, opening door!");


SERVOULTRA | Arduino IDE 2.3.2
File Edit Sketch Tools Help
ESP32-WROOM-DA M...
SERVOULTRA.ino
1.Compile the code
2.After Compilation build the code to board
#include <ESP32Servo.h>
Se
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co
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co
const int doorCloseAngle = 0;
const int distanceThreshold = 30;
void setup() {
myservo.attach(servoPin);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
Serial.begin(115200);
}
void loop() {
long duration, distance;
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = duration * 0.034 / 2;
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
if (distance <= distanceThreshold) {
Serial.println("Obstacle detected, opening door!");

SERVOULTRA | Arduino IDE 2.3.2

File Edit Sketch Tools Help

ESP32-WROOM-DA M...

SERVOULTRA.ino

```
#include <ESP32Servo.h>
Servo myservo;
const int trigPin = 5;
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  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration * 0.034 / 2;
  Serial.print("Distance: ");
  Serial.print(distance);
  Serial.println(" cm");
  if (distance <= distanceThreshold) {
    Serial.println("Obstacle detected, open
```

After Build the code the output like this

Output Serial Monitor

Message (Enter to send message to 'ESP32-WROOM-DA Module'

```
Obstacle detected, opening door!
Distance: 2 cm
Obstacle detected, opening door!
Distance: 2 cm
Obstacle detected, opening door!
Distance: 2 cm
Obstacle detected, opening door!
Distance: 57 cm
No obstacle, closing door!
Distance: 8 cm
Obstacle detected, opening door!
```