

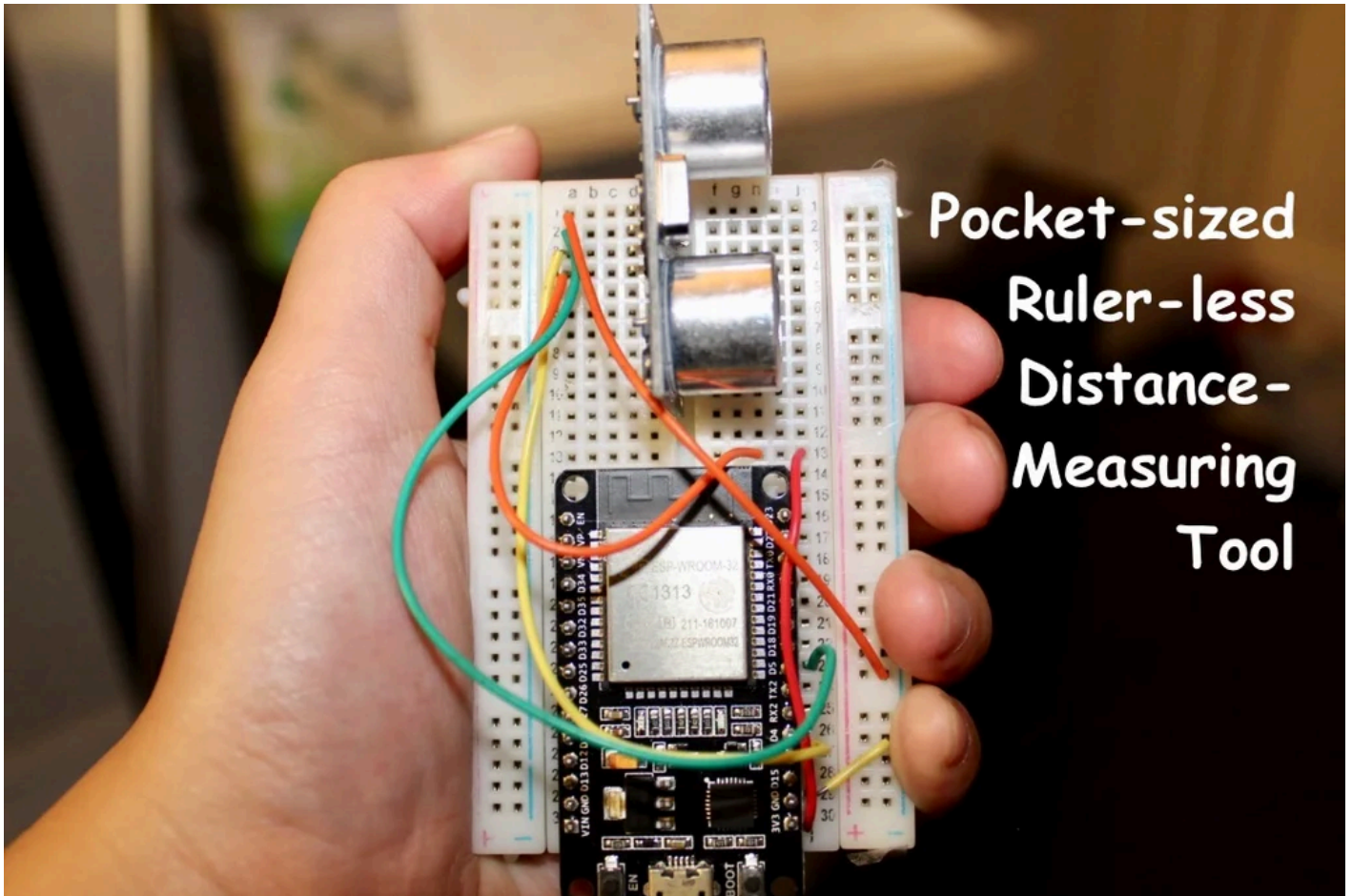
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Instructables

## ESP32: Pocket Size Distance Measuring and Logger

By [TechMartian](#) in [CircuitsMicrocontrollers](#)



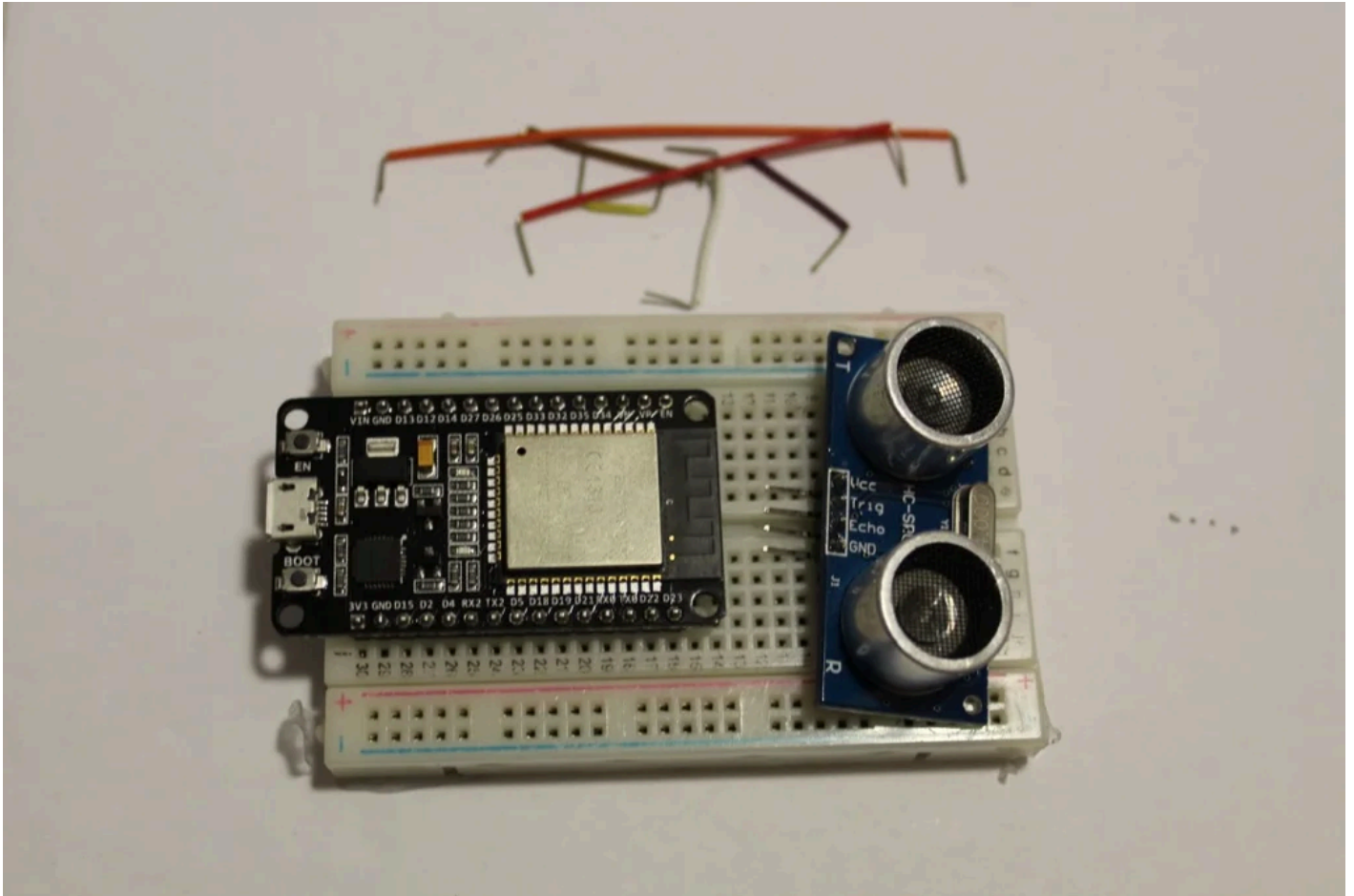
### Introduction: ESP32: Pocket Size Distance Measuring and Logger



This is a sonic (sound-based), pocket-size measuring tool, accurate up to 3mm. It is useful for applications where you want to log the distances or find distances that are inaccessible, therefore measuring tapes, rulers, and callipers are out of the question!

Since the ESP32 is such a tiny micro controller powered by a micro usb port, you can grab a small power bank, plug it in, and start measuring distances normally inaccessible with conventional means of measuring i.e. rulers.

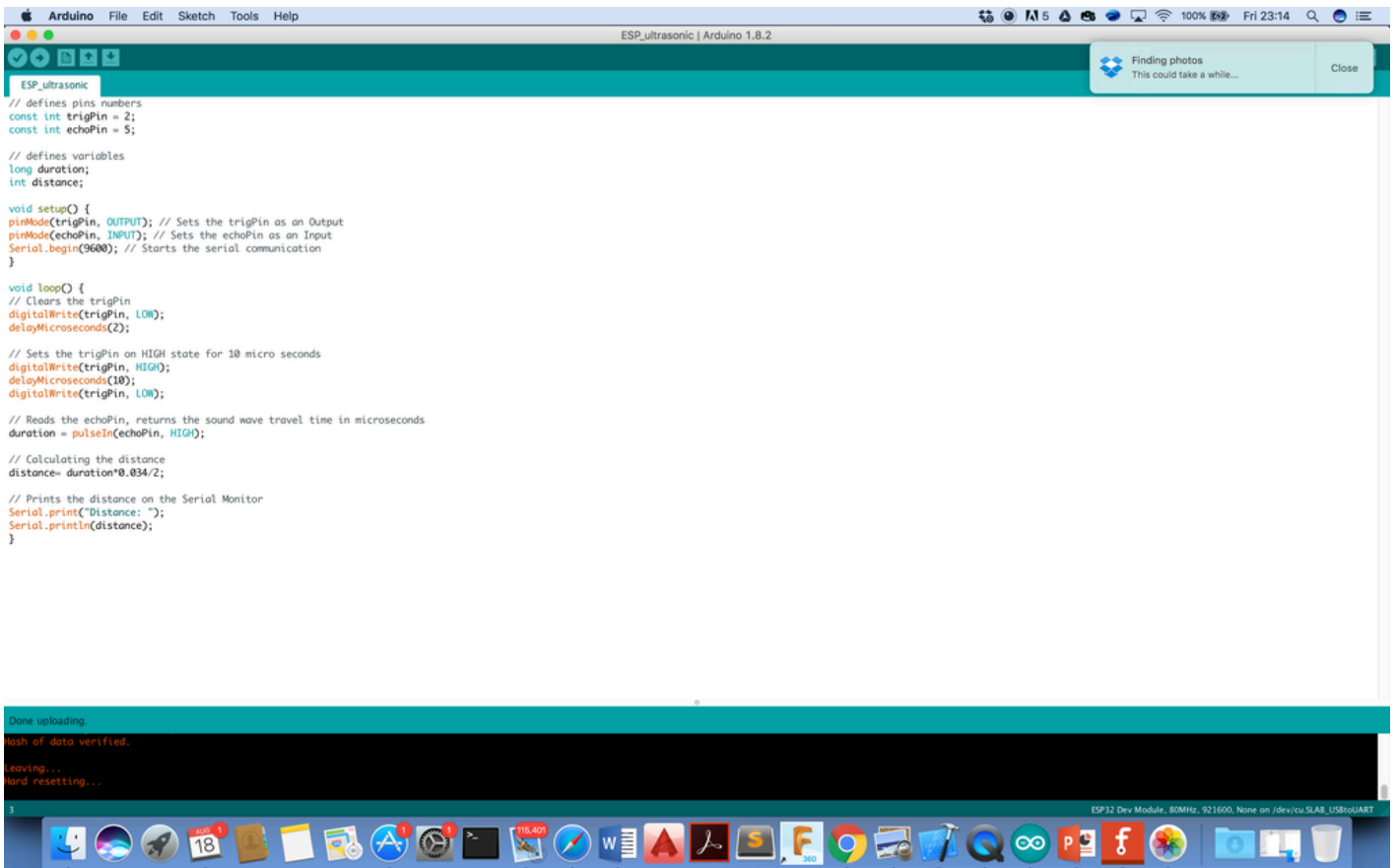
## Step 1: Materials and Tools



- ESP32
- Ultrasonic Sensor (HC-SR04)
- Breadboard
- Breadboard wires

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## Step 3: Coding and Uploading



Plug in your ESP32 to the computer and upload the following code to the ESP32 board. Make sure you have selected the correct board and port both will be labeled with ESP32.

```
// defines pins numbers

const int trigPin = 2;
const int echoPin = 5;

// defines variables
long duration;
int distance;

void setup() {
  pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output
  pinMode(echoPin, INPUT); // Sets the echoPin as an Input
  Serial.begin(9600); // Starts the serial communication
}

void loop() {
  // Clears the trigPin
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);

  // Sets the trigPin on HIGH state for 10 micro seconds
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

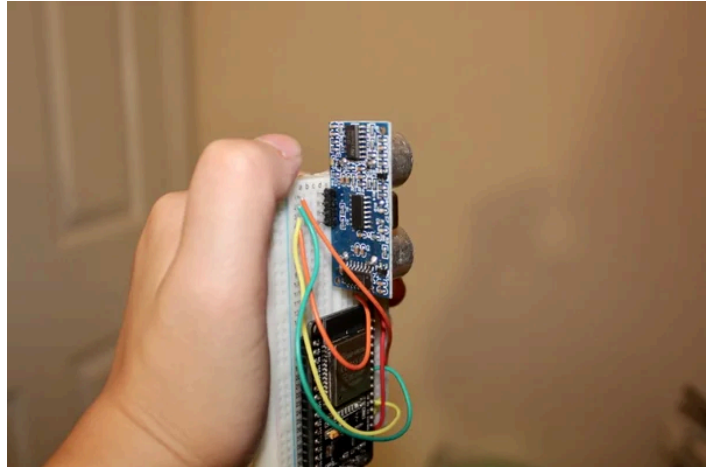
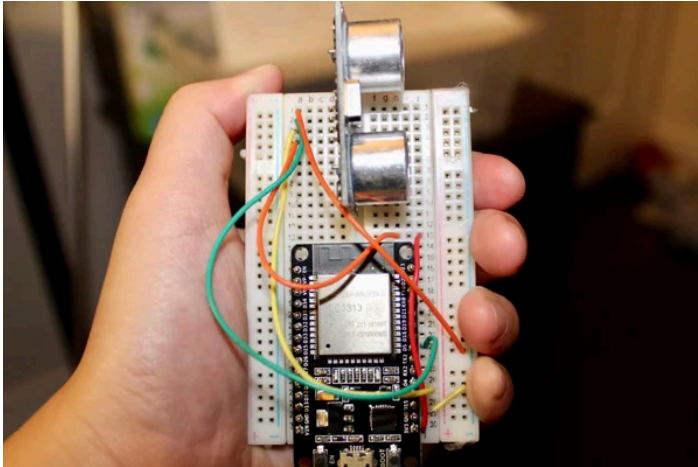
  // Reads the echoPin, returns the sound wave travel time in microseconds
  duration = pulseIn(echoPin, HIGH);

  // Calculating the distance
  distance= duration*0.034/2;

  // Prints the distance on the Serial Monitor
  Serial.print("Distance: ");
```

```
Serial.println(distance);  
}
```

## Step 4: Aim and Test!



Aim it at a distant object, like the wall or ceiling and measure! Try blocking it with your hand and watch the values change accurately and precisely.