Report Assignment 1

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```cpp
#include <ESP32Servo.h>

const int servoPin = 18;
const int potentiometerPin = 34;

Servo servo;

void setup() {
  servo.attach(servoPin);
}

void loop() {
  // Read the value from the potentiometer
  int potValue = analogRead(potentiometerPin);

  // Map the potentiometer value to the servo position (0-180 degrees)
  // max for esp32 3.3v is 4095
  int pos = map(potValue, 0, 4095, 0, 180);

  // Move the servo to the mapped position
  servo.write(pos);

  // Delay for smoother servo movement
  delay(15);
}
```

Explanation of the code:

1- import library controlling servo motors on the ESP32 platform(ESP32Servo).

2- Define pin constants for servo and potentiometer

3- Create a Servo object

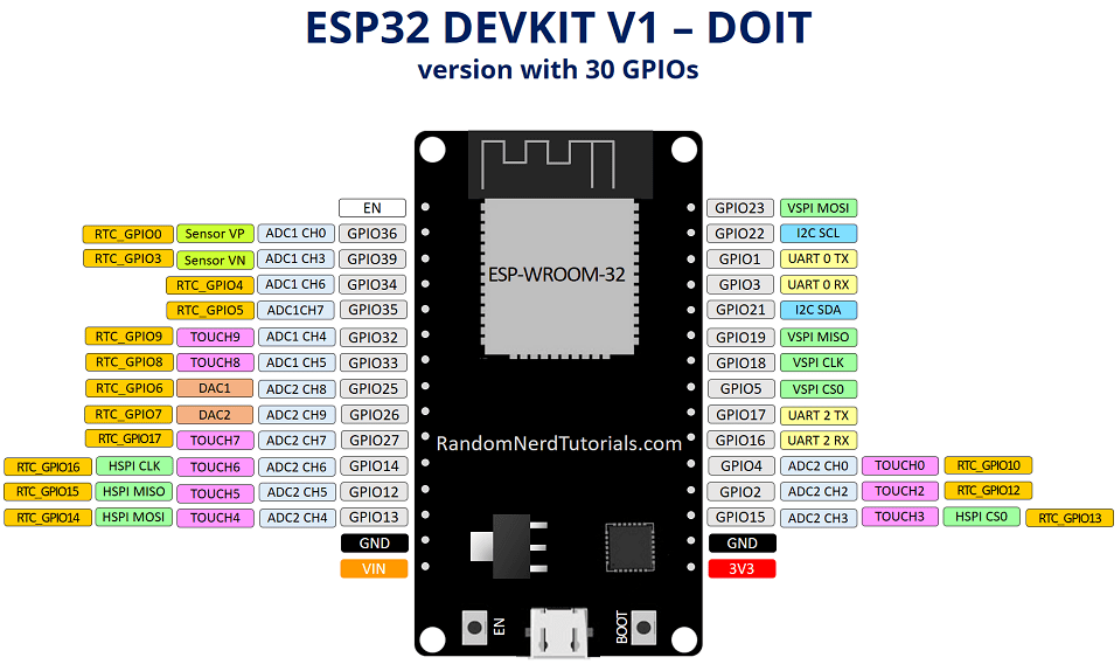
4- Create setup function and initializes the servo motor for communication

5- Create loop function:

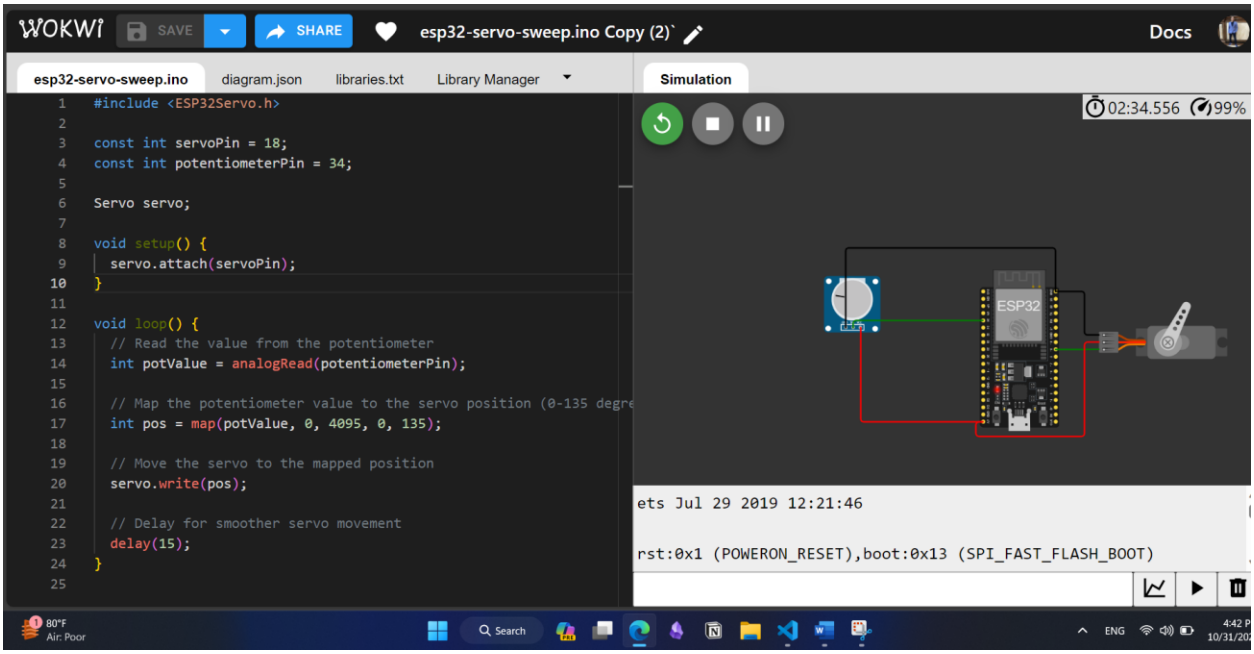
- analog Read (potentiometer Pin) reads the analog value from the potentiometer and connected to potentiometer Pin. The value is stored.
- Map: Range the analog value 0 to 4095 and Servo position from 0 to 180 degree
- Servo.write(pos) sets the servo motor's position to the value stored in the pos.
- a delay of 15 milliseconds

As a result, we control the servo's position by turning the potentiometer.

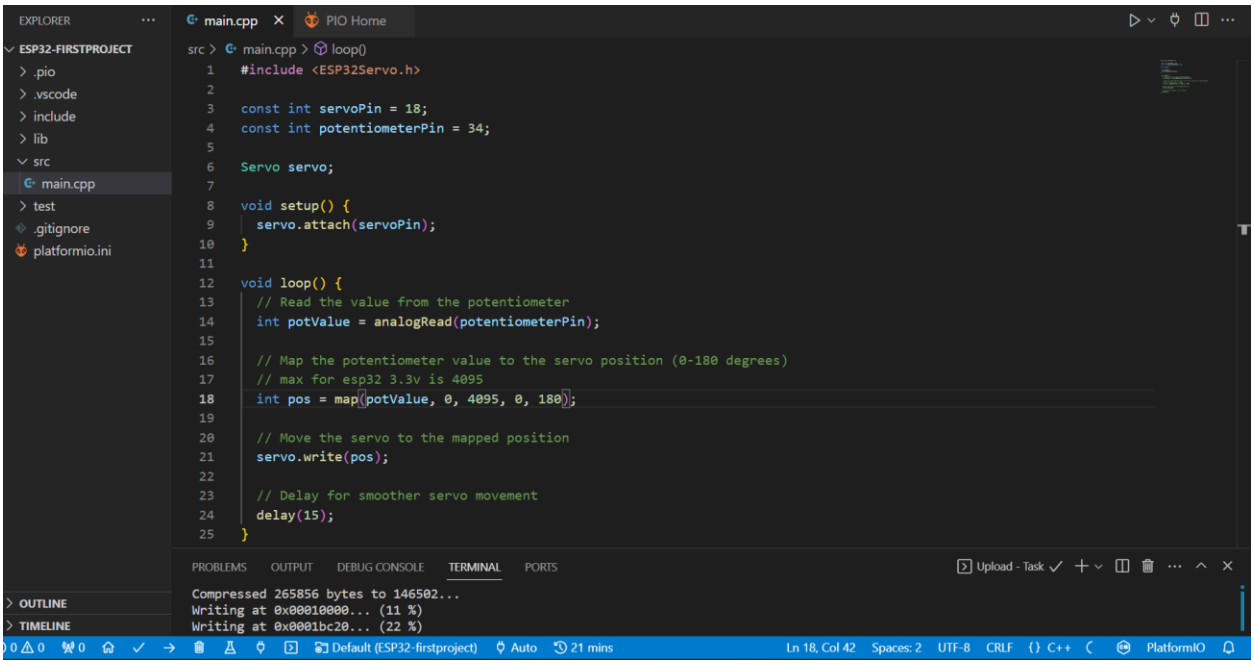
Data Sheet of esp32



Simulation on Wokwi before the implementation.



Using PlatformIO to Upload the code



System Diagram