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TASK #2 and 3 - ESP32 and the design of robot's arm

ESP32 is a feature-rich MCU with integrated Wi-Fi and Bluetooth connectivity for a wide-range of applications.

I make a circuit using **tinkercad**, ESP32 circuit using both of Arduino uno and ESP32.

For the power and transferring data and code we use micro usb cable connected directly to computer

First part of esp32

we want to define the esp32 and we want to make code to turn on the light of esp32



Figure 1 ESP32 CIRCUIT

CODE

```
// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000);                     // wait for a second
  digitalWrite(LED_BUILTIN, LOW);  // turn the LED off by making the voltage LOW
  delay(1000);                     // wait for a second
}
```

Figure 2 CODE

Second Part of esp32

We want to control esp32 using Wi-Fi

CODE

```
#include <WiFi.h>
#include <WiFiClient.h>
#include <WiFiAP.h>

#define LED_BUILTIN 2 // Set the GPIO pin where you connected your test LED or comment this line out if your dev board has a built-in LED

// Set these to your desired credentials.
const char *ssid = "yourAP";
const char *password = "yourPassword";

WiFiServer server(80);

void setup() {
  pinMode(LED_BUILTIN, OUTPUT);

  Serial.begin(115200);
  Serial.println();
  Serial.println("Configuring access point...");

  // You can remove the password parameter if you want the AP to be open.
  WiFi.softAP(ssid, password);
  IPAddress myIP = WiFi.softAPIP();
  Serial.print("AP IP address: ");
  Serial.println(myIP);
  server.begin();

  Serial.println("Server started");
}

void loop() {
  WiFiClient client = server.available(); // listen for incoming clients
```

Figure 3 CODE22

After uploading the code we can see a WiFi its name YourAP and we can change the ssid and pass from the code above.

After that we can access to the esp32 after we connect to Wifi's ESP32. To access to must open the link 192.168.4.1 to see the following controlling page



Click [here](#) to turn ON the LED.
Click [here](#) to turn OFF the LED.

Figure 4 Web controlling page

ROBOT ARM

We design the robot arm and set up the part and servomotor together

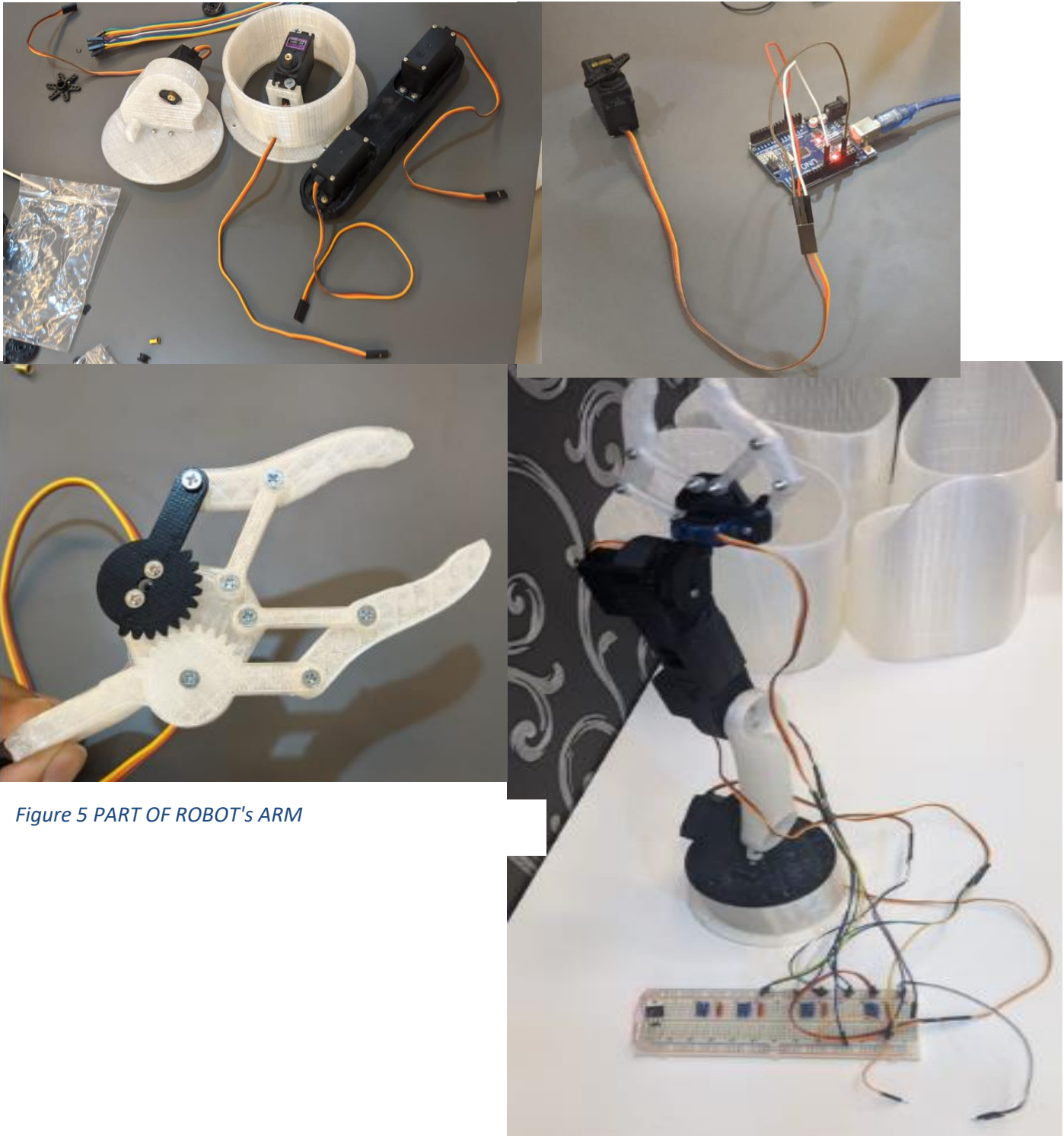


Figure 5 PART OF ROBOT's ARM