IOT WORK SHOP

DAY-3

ASSOCIATED BY:- MAKE SKILLED

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Innovations | Hackathons | Startups

TEAM NAME:- SMART CREATORS
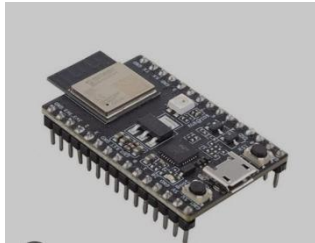
TEAM MEMBERS:- CH.ALEKHYA GAYATRI(24KE5AO404)
E. HIMA BINDU   (24KE5A0406)
D. TRISHA   (24KE5A0405)
K. PRIYA   (23KE1A0450)
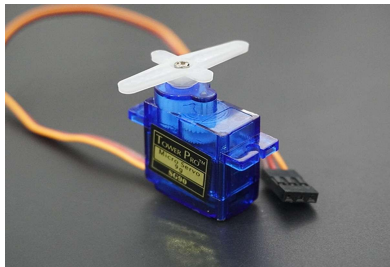F. SIVA PARVATHI   (23KE1A0431)

ACTIVITY-13

Q.ROTATING SERVO MOTOR TO 0 TO 90 AND 90 TO 0

REQUIRED COMPONENTS:-

ESP32

SERVO MOTOR

USB CABLE

JUMPER WIRES

MALE AND FEMALE JUMPER WIRES

CONNECTIONS:-

- ✓ Brown wire of the servo motor is connected to the GND of the ESP32 .
- ✓ Red wire of the servo motor is connected to the VCC of the ESP32 .
- ✓ Yellow wire of the servo motor is connected to the PIN D2 of the ESP32 .

CODE:-

```
#include<ESP32Servo.h>
Servo myServo ;



void setup() {
```

```
  myServo.attach(2);
  // put your setup code here, to run once:

}
void loop(){
myServo.write(90);
delay(5000);
myServo.write(0);
delay(5000);

  // put your main code here, to run repeatedly:

}
```

OUTPUT:-

✓ Before compile the code we have to install ESP32 servo library,after
   that compile the code.
✓ Code will be dumped on the ESP32 after that connect all connections.
✓ Then the output will be the servo motor is turns 90 degrees after 5
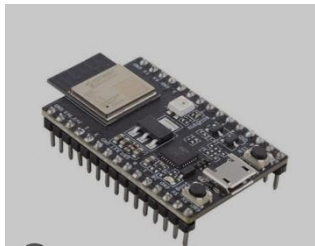   sec of time delay the servo motor turn 0 degrees.
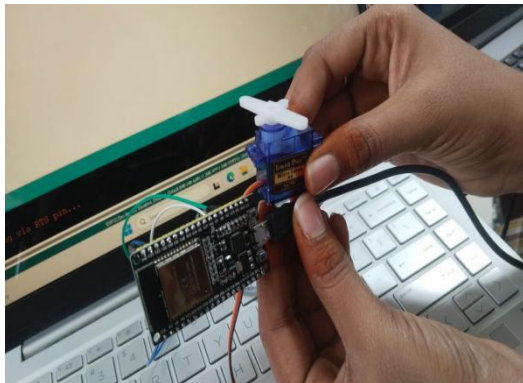
ACTIVITY-14

Q.INTEGRATING SOIL MOISTURE SENSOR WITH SERVO

MOTOR ROTATES 0 AND 90

REQUIRED COMPONENTS:-

ESP32

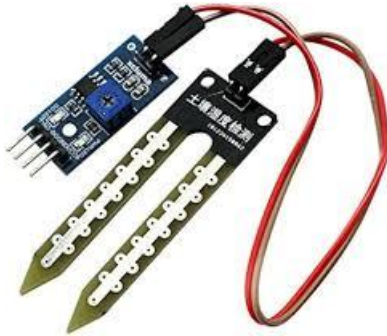**SERVO MOTOR**

USB CABLE

JUMPER WIRES

MALE AND FEMALE JUMPER WIRES

SOIL MOISTURE SENSOR WITH FISH SENSOR

CONNECTIONS:-

- ✓ Brown wire of the servo motor is connected to the GND of the ESP32 through the male to female wire.
- ✓ Red wire of the servo motor is connected to the VCC of the ESP32 through the male to female wire.
- ✓ Yellow wire of the servo motor is connected to the PIN D2 of the ESP32 through the male to female wire.

- ✓ A0 PIN of the soil moisture sensor is connected to the D34 of the ESP32.
- ✓ GND PIN of the soil moisture sensor is connected to the GND PIN of the ESP32.
- ✓ VCC PIN of the soil moisture sensor is connected to the VCC PIN of the ESP32.

CODE:-

```
#include<ESP32Servo.h>
int soil = 34;
int threshold = 4095;


 Servo myServo;


void setup() {
  myServo.attach(2);
  pinMode(soil,INPUT);
  Serial.begin(9600);
  // put your setup code here, to run once:
}
void loop() {
  int g = analogRead(soil);
  Serial.println(g);
  if(g<threshold){
  Serial.println("moisture detected");
  myServo.write(0);
  // put your main code here, to run repeatedly:

}
else{
  Serial.println("no moisture detected");
  myServo.write(90);


  }
```
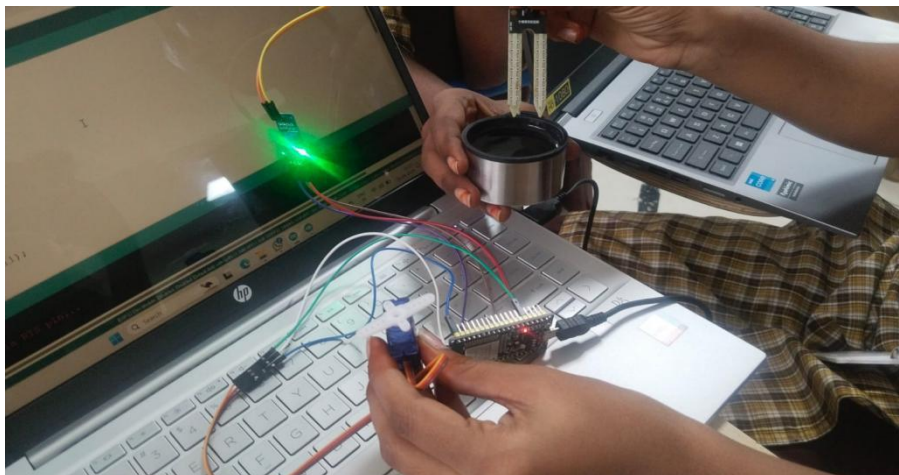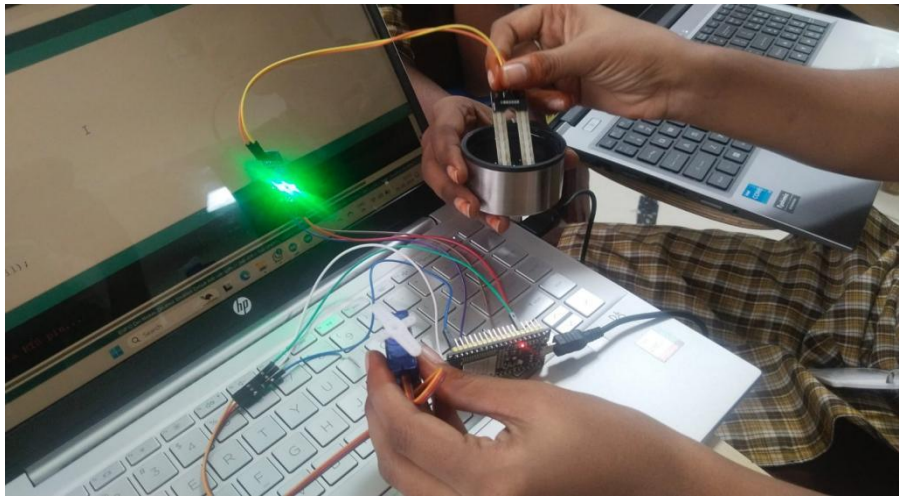
}

OUTPUT:-

✓ Code will be dumped on the ESP32 after that connect all connections.
✓ When the soil moisture sensor detects moisture prints the output moisture detected and the servo motor is in OFF state.
✓ When the soil moisture sensor detects no moisture prints the output no moisture detected and the servo motor is in ON state.
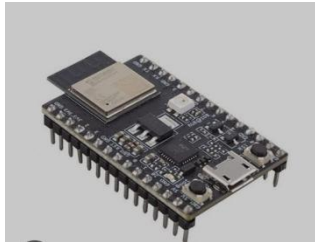
ACTIVITY-15

Q.INTEGRATING SOIL MOISTURE SENSOR WITH BUZZER

REQUIRED COMPONENTS:-

ESP32

USB CABLE

JUMPER WIRES

SOIL MOISTURE SENSOR WITH FISH SENSOR

BUZZER

CONNECTIONS:-

- ✓ 0 PIN of the soil moisture sensor is connected to the D34 of the ESP32.
- ✓ GND PIN of the soil moisture sensor is connected to the GND PIN of the ESP32.
- ✓ VCC PIN of the soil moisture sensor is connected to the VCC PIN of the ESP32
- ✓ +PIN of the buzzer is connected to the D12th PIN of the ESP32 PIN.
- ✓ -PIN of the buzzer is connected to the GND PIN of the ESP32.

CODE:-

```
int soil = 34;
int threshold = 402;
int buzzer = 12;

void setup() {
  pinMode (soil,INPUT);
  pinMode (buzzer,OUTPUT);
  Serial.begin(9600);

  // put your setup code here, to run once:

}

void loop() {
  int a = analogRead(soil);
  Serial.println(a);
  if(a<threshold){
    Serial.println("moisture decteted");
    digitalWrite(buzzer,0);

  }
  // put your main code here, to run repeatedly:
  else{
    Serial.println("no moisture decteted");
    digitalWrite(buzzer,0);

  }
```

OUTPUT:-

- ✓ Code will be dumped on the ESP32 after that connect all connections.
- ✓ When the soil moisture sensor detects moisture prints the output moisture detected and the buzzer is in OFF state.
- ✓ When the soil moisture sensor detects no moisture prints the output no moisture detected and the buzzer is in ON state

ACTIVITY-16

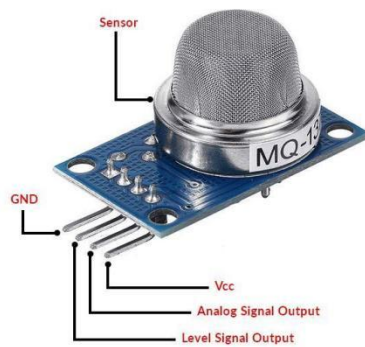## Q.INTEGRATING GAS SENSOR WITH LDR SENSOR

REQUIRED COMPONENTS:-
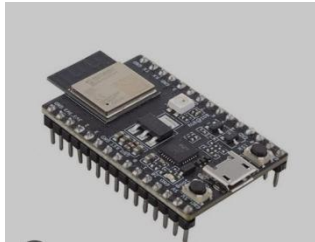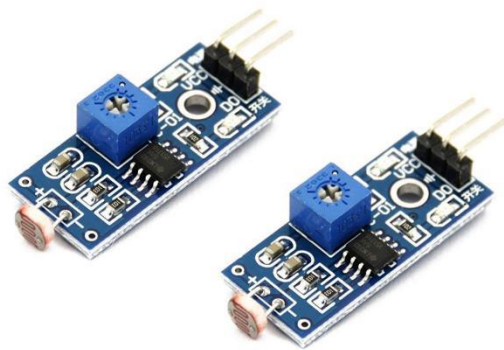
ESP32

USB CABLE

JUMPER WIRES

GAS SENSOR

LDR SENSOR

CONNECTIONS:-

- ✓ The A0 PIN of the gas sensor is connected to the D34 PIN of the ESP32.
- ✓ The GND PIN of the gas sensor is connected to the GND PIN of the ESP32.
- ✓ The VCC PIN of the gas sensor is connected to the VCC PIN of the ESP32.
- ✓ The D0 PIN of the LDR sensor is connected to the D12 PIN of the ESP32.
- ✓ The GND PIN of the gas sensor is connected to the GND PIN of the ESP32.
- ✓ The VCC PIN of the gas sensor is connected to the VCC PIN of the ESP32.

CODE:-

```
int gas = 34;
int threshold = 2000;
int ldr = 12;
void setup() {
  pinMode(gas,INPUT);
  pinMode(ldr,INPUT);
  Serial.begin(9600);
}

void loop() {
  int a1 = analogRead(gas);
  Serial.println(a1);
  int a2 = digitalRead(ldr);
  Serial.println(a2);
  if(a1<threshold){
    Serial.println("Harmful gas detected");
  }
  else{
    Serial.println("No gas detected");
  }
  if(a2 == 1){
    Serial.println("Dark detected");
  }
  else{
    Serial.println("Dark detected");
}}
```

OUTPUT:-

✓ Code will be dumped on the ESP32 after that connect all connections.
✓ When the gas sensor detected harmful gas then print the output on serial monitor as harmful gas detected.
✓ When the gas sensor detected not harmful gas then print the output on serial monitor as no harmful gas detected.
✓ When the LDR sensor detects dark then the output is 1 and prints the statement dark detected.
✓ When the LDR sensor detects light then the output is 0 and prints the statement light detected.

ACTIVITY-17

Q . CONNECTING WIFI WITH ESP32

ESP32
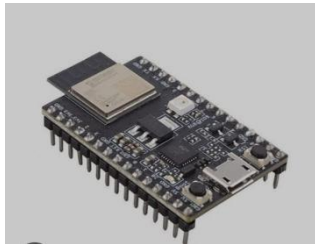
USB CABLE

DATA HOTSPOT

CONNECTIONS:-

✓ Connect the cable laptop to ESP32

CODE:-

```
#include<WiFi.h>
const char * ssid = ("Buddiii");
```

```
const char * passward = ("6309846308");

void setup() {
  Serial.begin(9600);
  WiFi.mode(WIFI_STA);
  WiFi.begin(ssid,passward);
  Serial.println("WiFi connecting");
  while(WiFi.status()!=WL_CONNECTED){
  delay(5000);
  Serial.println(".");
}
Serial.println("WiFi connected");
}


void loop() {
  // put your main code here, to run repeatedly:

}
```

OUTPUT:-

- ✓ **The connecting Wi-Fi with ESP32, the WIFI hotspot must have unlimited connections.**
- ✓ **Hotspot user name password not contain special characters.**
- ✓ **When the ESP32 is connected to WI-FI hotspot then prints the output in serial monitor WiFi connected**
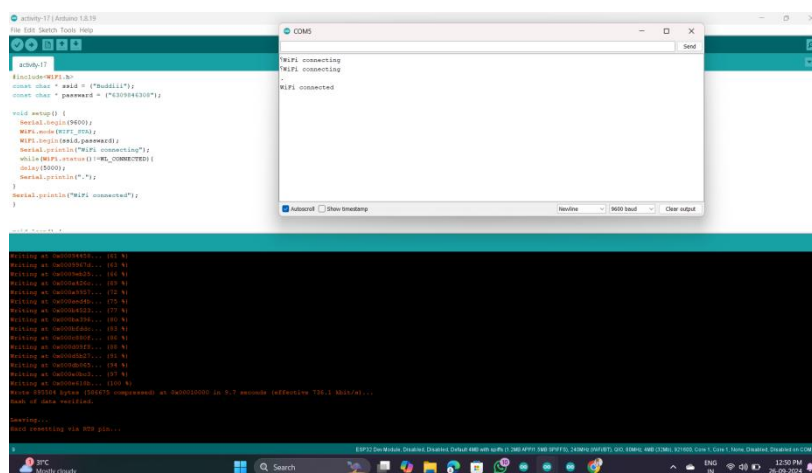
ACTIVITY-18

Q . CREATE ACCOUT ON THINGSPEAK.COM

PROCESS:-

- Go to chrome and search the thingspeak.,com

- Click get started

- Click create one

- Enter your Email id and fill the details.

- Go to Email verify math works Email.

- Set your strong password and click on continue.

- Then signed in thingspeak.com successfully and click ok.

Thank You!