Ultrasonic

// Define pins for the ultrasonic sensor

#define TRIG\_PIN D1 // Trigger pin connected to D1 (GPIO5)

#define ECHO\_PIN D2 // Echo pin connected to D2 (GPIO4)

// Variable to store the measured distance

long duration;

int distance;

void setup() {

// Start serial communication for debugging

Serial.begin(115200);

// Set pin modes

pinMode(TRIG\_PIN, OUTPUT); // Trigger pin is an output

pinMode(ECHO\_PIN, INPUT); // Echo pin is an input

}

void loop() {

// Clear the trigger pin by setting it LOW

digitalWrite(TRIG\_PIN, LOW);

delayMicroseconds(2); // Wait for 2ms

// Send a 10ms pulse to trigger the ultrasonic sensor

digitalWrite(TRIG\_PIN, HIGH);

delayMicroseconds(10); // Wait for 10ms

digitalWrite(TRIG\_PIN, LOW);

// Read the time it takes for the echo to return

duration = pulseIn(ECHO\_PIN, HIGH);

// Calculate the distance (Speed of sound is 34300 cm/s, divide by 2 for round trip)

distance = duration \* 0.0344 / 2; // distance in cm

// Print the distance to the serial monitor

Serial.print("Distance: ");

Serial.print(distance);

Serial.println(" cm");

// Wait for a short period before measuring again

delay(500);

}

DHT11

#include <DHT.h>

// Define the DHT sensor type and pin

#define DHTPIN D2 // Pin where the DHT11 is connected (GPIO4)

#define DHTTYPE DHT11 // Type of sensor (DHT11)

DHT dht(DHTPIN, DHTTYPE); // Create an instance of the DHT class

void setup() {

// Start serial communication

Serial.begin(115200);

// Initialize the DHT sensor

dht.begin();

}

void loop() {

// Wait a few seconds between readings

delay(2000);

// Read humidity and temperature from the sensor

float humidity = dht.readHumidity();

float temperature = dht.readTemperature(); // Celsius

// Check if any reads failed and exit early (NaN means failure)

if (isnan(humidity) || isnan(temperature)) {

Serial.println("Failed to read from DHT sensor!");

return;

}

// Print the results to the Serial Monitor

Serial.print("Humidity: ");

Serial.print(humidity);

Serial.print(" %\t");

Serial.print("Temperature: ");

Serial.print(temperature);

Serial.println(" °C");

}

LDR

// Define pin for the LDR

#define LDR\_PIN A0 // The LDR is connected to the A0 (Analog pin)

void setup() {

// Start serial communication for debugging

Serial.begin(115200);

}

void loop() {

// Read the analog value from the LDR pin

int ldrValue = analogRead(LDR\_PIN);

// Print the raw value from the LDR to the Serial Monitor

Serial.print("LDR Value: ");

Serial.println(ldrValue);

// Wait for a short period before reading again

delay(500);

}

LED

// Define the pin where the LED is connected

#define LED\_PIN D2 // You can change this to any GPIO pin (e.g., D1, D3, etc.)

void setup() {

// Set the LED pin as an output

pinMode(LED\_PIN, OUTPUT);

}

void loop() {

// Turn the LED on

digitalWrite(LED\_PIN, HIGH);

delay(1000); // Wait for 1 second (1000 milliseconds)

// Turn the LED off

digitalWrite(LED\_PIN, LOW);

delay(1000); // Wait for 1 second

}