Exp 20

Fading LED

int led = 9;           // the PWM pin the LED is attached to

int brightness = 0;    // how bright the LED is

int fadeAmount = 5;    // how many points to fade the LED by

// the setup routine runs once when you press reset:

void setup() {

  // declare pin 9 to be an output:

  pinMode(led, OUTPUT);

}

// the loop routine runs over and over again forever:

void loop() {

  // set the brightness of pin 9:

  analogWrite(led, brightness);

  // change the brightness for next time through the loop:

  brightness = brightness + fadeAmount;

  // reverse the direction of the fading at the ends of the fade:

  if (brightness <= 0 || brightness >= 255) {

    fadeAmount = -fadeAmount;

  }

  // wait for 30 milliseconds to see the dimming effect

  delay(30);

}

Exp 21

Water level

int sensorPin = A3;

int sensorValue = 0;

int value;

void setup() {

Serial.begin(9600);

pinMode(sensorPin, INPUT);

}

void loop() {

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

//sensorValue = analogRead(sensorPin);

value = analogRead(sensorPin);

if (value<=480){

Serial.println("Water level: 0mm - Empty!");

}

else if (value>480 && value<=530){

Serial.println("Water level: 0mm to 5mm");

}

else if (value>530 && value<=615){

Serial.println("Water level: 5mm to 10mm");

}

else if (value>615 && value<=660){

Serial.println("Water level: 10mm to 15mm");

}

else if (value>660 && value<=680){

Serial.println("Water level: 15mm to 20mm");

}

else if (value>680 && value<=690){

Serial.println("Water level: 20mm to 25mm");

}

else if (value>690 && value<=700){

Serial.println("Water level: 25mm to 30mm");

}

else if (value>700 && value<=705){

Serial.println("Water level: 30mm to 35mm");

}

else if (value>705){

Serial.println("Water level: 35mm to 40mm");

}

delay(2000);

}

Exp 22

Ultrasonic sensor

const int trigPin = 2;

const int echoPin = 3;

const int buzzerPin = 8; // Pin for the piezo buzzer

float length = 0;

const float thresholdDistance = 30.0; // Set the threshold distance in cm

void setup() {

Serial.begin(9600);

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

pinMode(buzzerPin, OUTPUT); // Set the buzzer pin as output

}

void loop() {

// Send a short pulse to trigger the ultrasonic sensor

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Measure the duration of the echo pulse

long duration = pulseIn(echoPin, HIGH);

// Calculate the distance in cm

length = duration \* 0.0343 / 2;

// Display the distance

Serial.print("Distance: ");

Serial.print(length);

Serial.println(" cm");

// Check if the distance is below the threshold

if (length < thresholdDistance) {

// Emit a sound if the object is close

tone(buzzerPin, 1000); // Play a tone at 1000 Hz

delay(200); // Sound duration

noTone(buzzerPin); // Stop the tone

}

delay(500); // Delay between measurements

}

MQ-6 gas

Exp 23

void setup() {

// initialize serial communication at 9600 bits per second:

Serial.begin(9600);

}

// the loop routine runs over and over again forever:

void loop() {

// read the input on analog pin 0:

int sensorValue = analogRead(A0);

// print out the value you read:

Serial.println(sensorValue);

delay(1000);

}