**IR Speed Sensor Using Arduino Code**

int sen1 = A0;

int sen2 = A3;

int ledPin = 9;

unsigned long timeFirst = 0;

unsigned long timeScnd = 0;

float velocity;

float velocity\_real;

float diff;

const float distConst = 7.5; // Distance between sensors in cm

void setup() {

 Serial.begin(9600);

 pinMode(sen1, INPUT);

 pinMode(sen2, INPUT);

 pinMode(ledPin, OUTPUT);

 analogWrite(11, LOW);

 analogWrite(10, HIGH);

}

void loop() {

 if (analogRead(sen1) < 500 && timeFirst == 0) { // Object passes first sensor

 timeFirst = millis();

 digitalWrite(ledPin, LOW);

 delay(30);

 }

 if (analogRead(sen2) < 500 && timeFirst != 0) { // Object passes second sensor

 timeScnd = millis();

 diff = timeScnd - timeFirst;

 velocity = distConst / diff; // velocity in cm/ms

 velocity\_real = (velocity \* 10); // Convert to m/s (cm/ms to m/s)

 delay(30);

 digitalWrite(ledPin, HIGH);

 // Print velocity and unit in the same line

 Serial.print("The velocity is: ");

 Serial.print(velocity\_real);

 Serial.println(" m/s.");

 delay(500);

 digitalWrite(ledPin, LOW);

 delay(500);

 // Reset times for next measurement

 timeFirst = 0;

 timeScnd = 0;

 }

 /\*Uncomment if you want to handle the case when both sensors detect an object

 else if (analogRead(sen2) < 500 && analogRead(sen1) < 500) {

 Serial.println("Error: 404 / The object is too big.");

 }

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 /\* Uncomment if you want to handle the case when no object is detected

 else {

 Serial.print("Error: 404 / No object detected.");

 }

 \*/

}