**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.");

}

\*/

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

else {

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

}

\*/

}