

Name:

Date:

Class:

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);
  }
}
```

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```
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.");
}
*/
}
```