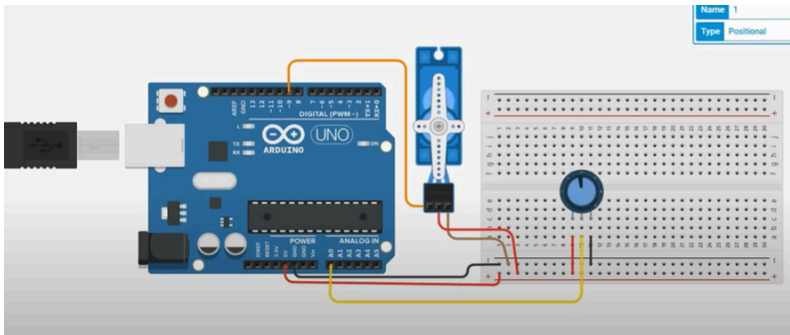


W11B: DE [Tollgate Part 2: PIR Sensor] Arduino Variables Tutorial

Introduction

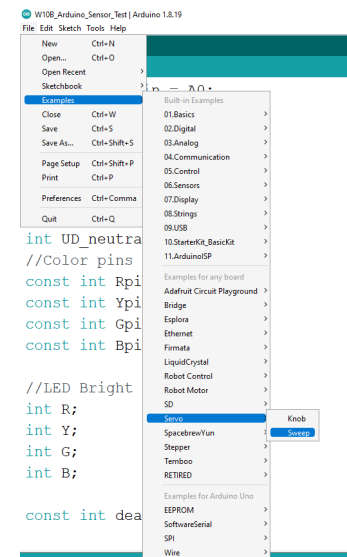
Programming languages have their own grammar called “syntax”. Programs written with the Arduino software are called Sketches. A **Sketch** (program written with **Arduino**) will contain: a title, **constants**,



variables, `setup()` functions, and `loop()` functions. If the syntax of a language is not followed, the program will not compile correctly. This means that no executable code will be produced. Fortunately, the **Arduino** integrated development environment (IDE) will provide error messages that will help you fix your “bad grammar”... called “syntax errors”. One of the most common syntax errors that students make is forgetting that lines of code need to end with a semicolon.

Equipment

- <https://my.pltw.org>
- Computer with Arduino Software & **Pulse Width Modulation (PWM)**
- Use the **Arduino Examples** → **Servo Sweep**
- Parallax® student DE bundle with **Arduino**
 - **Arduino**™ UNO Microcontroller Board
- **Arduino**™ IDE Software
- Breadboard
- PIR Sensor
- VEX® 393 Motor with Motor Controller 29 [SERVO]



Procedure

Introduction: Create a “New Sketch” and enter the code from the **Sensor Examples: SERVO with SWEEP**.

1. Use the space below to provide pictures and a short video of your toll gate in action with the **PIR Sensor**.

Provide a picture of your toll gate and design a short YouTube video of the toll gate operating with the PIR Sensor.

<https://youtu.be/9ulfWvHY-04>

2. In the table below provide the Arduino Code operating **two servo motors** with a **PIR Sensor**.

Arduino Code

```
int pirPin = 3; // Pin connected to PIR sensor output
int rightPin = 5;
int leftPin = 6;
#include <Servo.h>

Servo rightServo;
Servo leftServo;

void setup() {
  rightServo.attach(rightPin);
  leftServo.attach(leftPin);
  rightServo.write(0);
  leftServo.write(90);
  pinMode(pirPin, INPUT); //Set PIR as input
  Serial.begin(9600); //Start serial communication
}

void loop() {
  int motionDetected = digitalRead(pirPin); // Read PIR sensor output
  if (motionDetected == 1) {
    rightServo.write(0);
    leftServo.write(90);
  } else if (motionDetected == 0) {
    rightServo.write(74);
```

```
        leftServo.write(16);
    }
    delay(1000); // 1 second delay to stabilize
    Serial.println(motionDetected);
}
```

3. Make sure to **comment** on the code and write down the names of the **team members** who worked together on this assignment as a comment. Make sure to explain in the comments how you were able to get the code to work.

Arduino Code- Attach code on a Google Document.

```
// Matthew Jeide and Ancel Varner, PIR sensor on double toll gate
int pirPin = 3; // Pin connected to PIR sensor output
int rightPin = 5;
int leftPin = 6;
#include <Servo.h>

Servo rightServo;
Servo leftServo;

void setup() {
    rightServo.attach(rightPin);
    leftServo.attach(leftPin);
    rightServo.write(0);
    leftServo.write(90);
    pinMode(pirPin, INPUT); //Set PIR as input
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void loop() {
    int motionDetected = digitalRead(pirPin); // Read PIR sensor output
    if (motionDetected == 1) {
        rightServo.write(0);
        leftServo.write(90);
    } else if (motionDetected == 0) {
        rightServo.write(74);
        leftServo.write(16);
    }
    delay(1000); // 1 second delay to stabilize
}
```

```
Serial.println(motionDetected);  
}
```

4. Attach the work to your E-Portfolio. Make sure that the pasted code is on a separate Google Document and that the video is attached to your E-Portfolio (YouTube preferred).

E-Portfolio Link Video and Code

<https://sites.google.com/riversideunified.org/matthewjeide/notes/w13b-de-tollgate-part-2-pir-sensor-arduino-variables-tutorial>

5. In the Senior Capstone Class (EDD) you will have to design your own project. What are your interests? Be specific since this will help you move forward in EDD.

Answer below

My interests would definitely be something in computer programming, microcontrollers, or anything electronic and program related as those are my strong suits. I could be a valuable asset to anyone's team or project, for my own projects, I have not given much thought to what project I will do in EDD.