Coding An Accelerometer

Adafruit Circuit Playground Express

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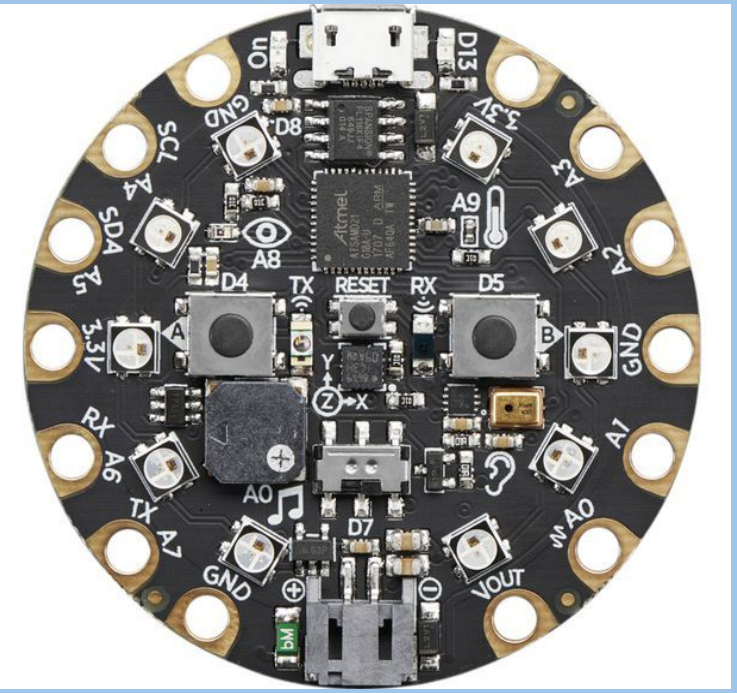
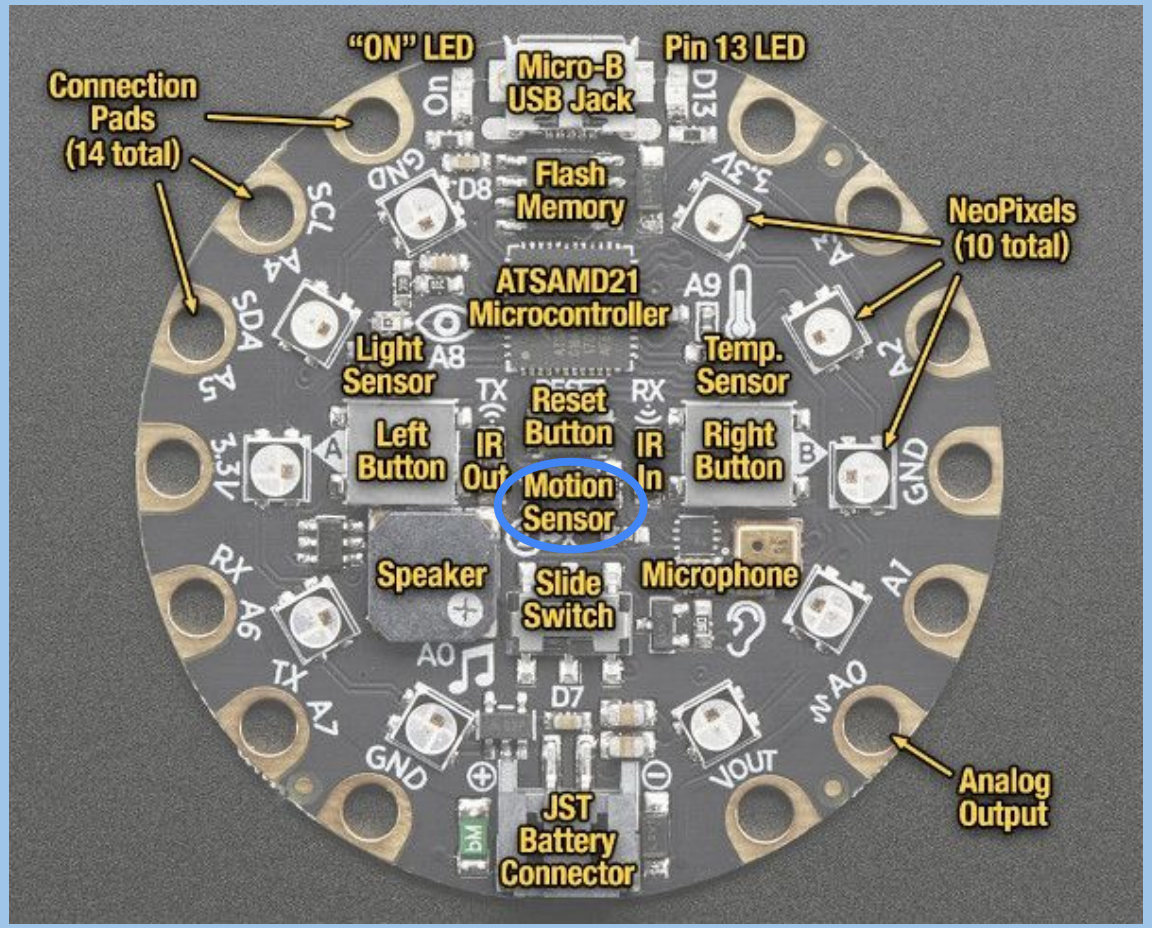
We used an adafruit circuit playground express for our project.



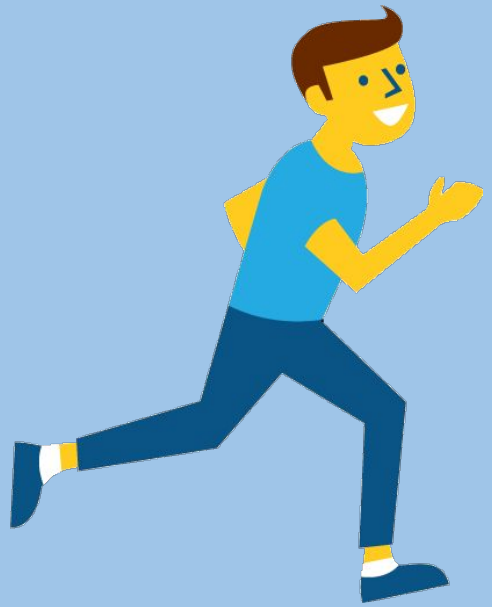


What is an accelerometer?

This sensor detects acceleration which means it can be used to detect when its being moved around, as well as gravitational pull in order to detect orientation. We used the accelerometer to detect overall motion and have sound in accordance to the motion.

Our Goal

Using the accelerometer component we wanted to create a wearable that displayed changes in motion and notified the person wearing it when they went above a certain range of motion.



```
#include <Adafruit_CircuitPlayground.h>
#include "math.h"

float a = CircuitPlayground.motionX();
float b = CircuitPlayground.motionY();
float c = CircuitPlayground.motionZ();
float h;
float frequency = 0;

void setup() {
  //Serial.begin(9600);
  //Serial.println("Circuit Playground test!");

  CircuitPlayground.begin();

}


void loop() {
  h = sqrt( a * a + b * b + c * c);
  a = CircuitPlayground.motionX();
  b = CircuitPlayground.motionY();
  c = CircuitPlayground.motionZ();



 for (int pixel = 0; pixel < 10; pixel++) {

   CircuitPlayground.setPixelColor(pixel, 89, 158, 92);
 }
  //Serial.println(h);
  // delay(10);

  if (h > 8)  {
    //int frequency = analogRead(9);
 h = map(h,9,30,20,500);
 frequency = frequency *0.98+(0.02*h);

    CircuitPlayground.playTone(frequency, 100);

}
}


```

We wrote our own code and created equations and variables.

Our motion number is defined by “h”, which is created by combining the directions of X, Y, and Z.

Our Code

https://create.arduino.cc/editor/maddie_gross/f1e125e3-b934-4920-832a-71c69665143f/preview