

# Lab 5 - Jack in the Box!

## Code

```
#include <Servo.h>

// Pins
#define servoPin 10
#define switchPin A3

// Open and close position for servo
#define closePos 180
#define openPos 95

// Servo and state vars
Servo servo;
int switchState;
int previousSwitchState;

void toggleSwitch(int switchState){
    // Set servo position depending on switchState
    if(switchState == HIGH){
        servo.write(openPos);
    }
    else{
        servo.write(closePos);
    }
    previousSwitchState = switchState;
}

void setup(){
    // Setup FSR
    pinMode(switchPin, INPUT);
    switchState = LOW;
    previousSwitchState = LOW;

    // Setup Servo
    servo.attach(servoPin);
    servo.write(closePos);
}

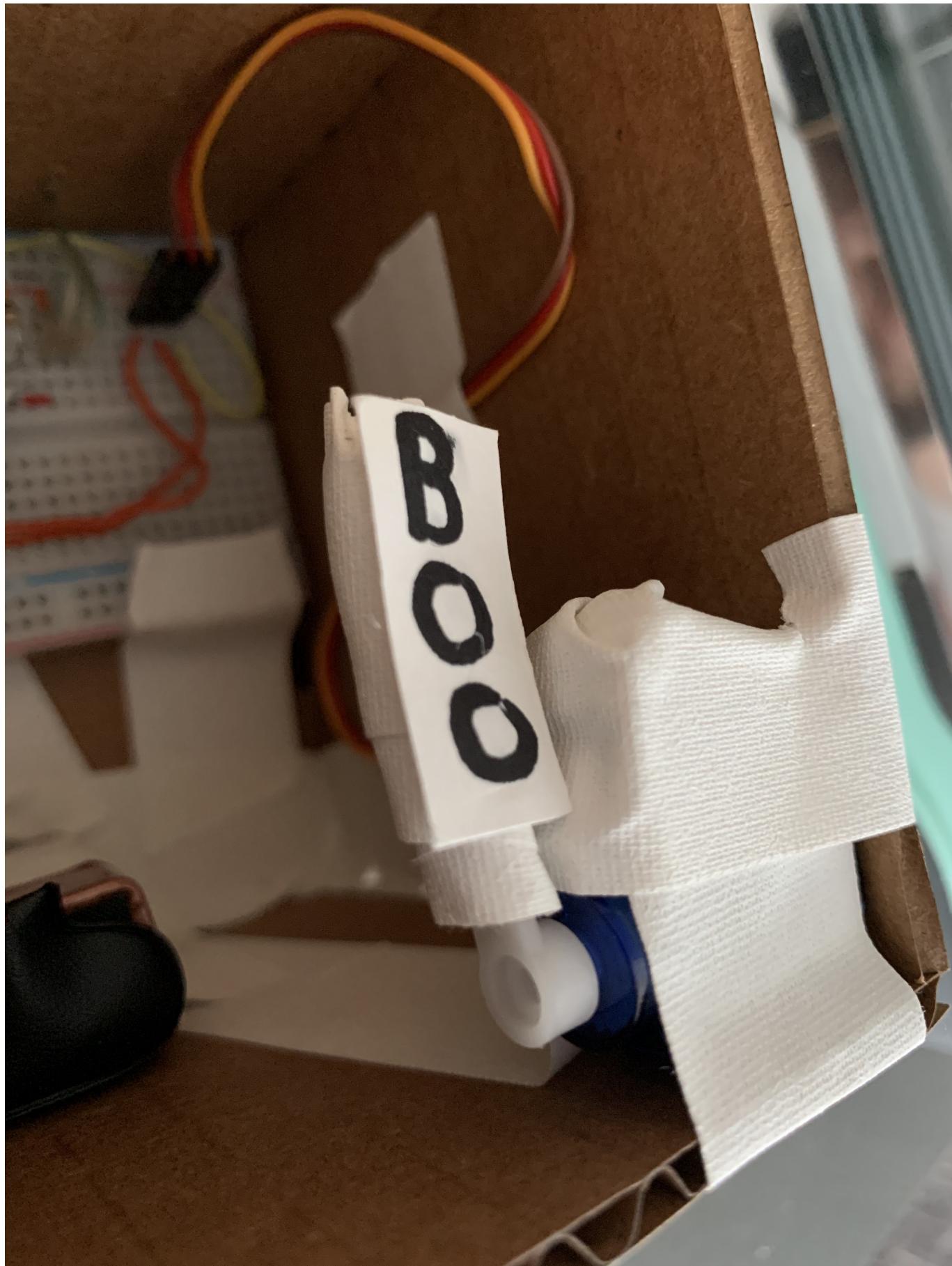
void loop(){
    // Read FSR, if above 100 set switchState to HIGH, else LOW
    int fsrValue = analogRead(switchPin);
    Serial.println(fsrValue);
    if(fsrValue > 200){
        switchState = HIGH;
    }
    else{
        switchState = LOW;
    }
    toggleSwitch(switchState);
}
```

```
}

// Toggle switch if state has changed
if (switchState != previousSwitchState){
    toggleSwitch(switchState);
}
delay(20);
}
```

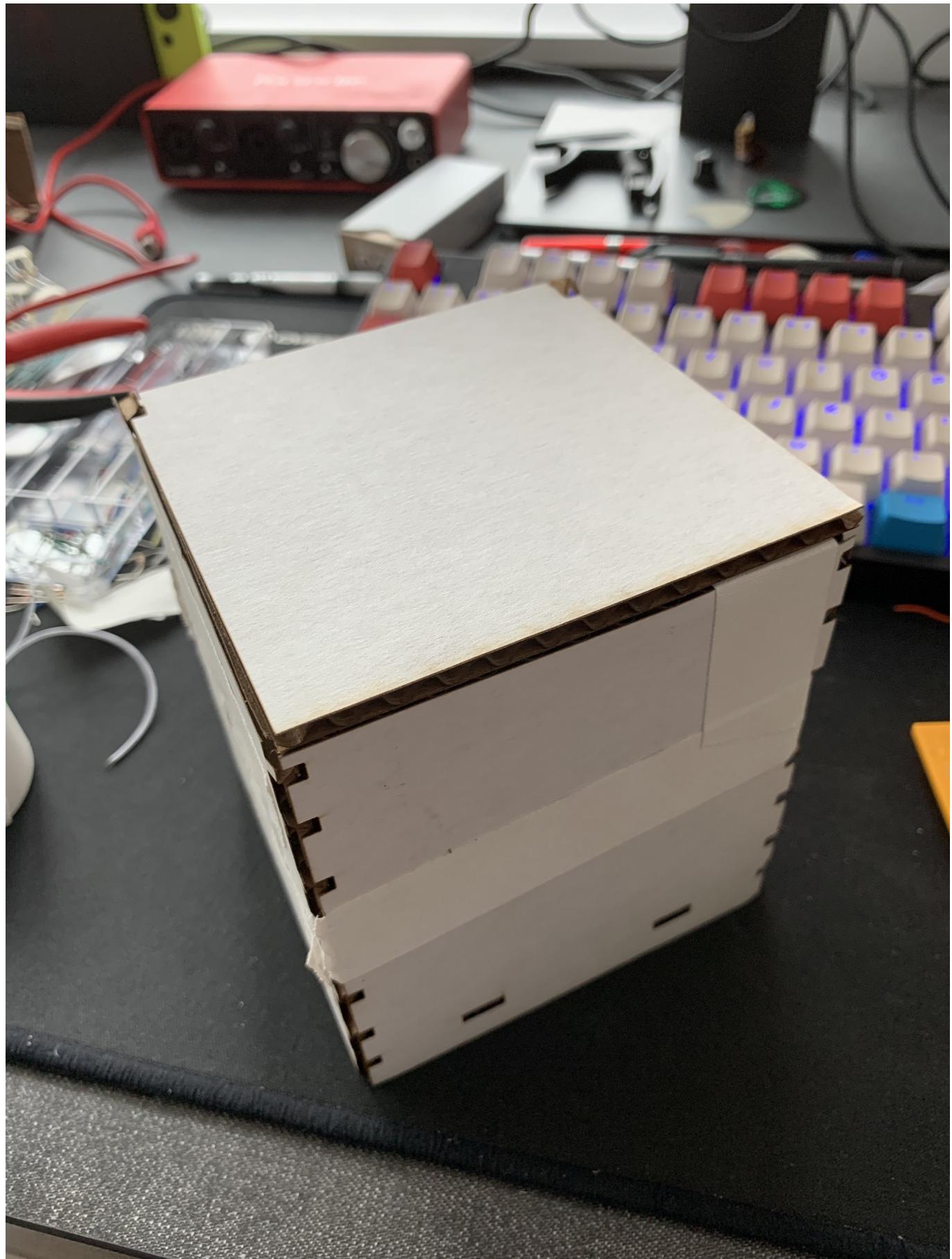
## The Jack

The Jack is very un-fancy. It was made by wrapping wires together on a servo arm and wrapping those in tape. Any piece of paper can then be stuck to the tape easily.

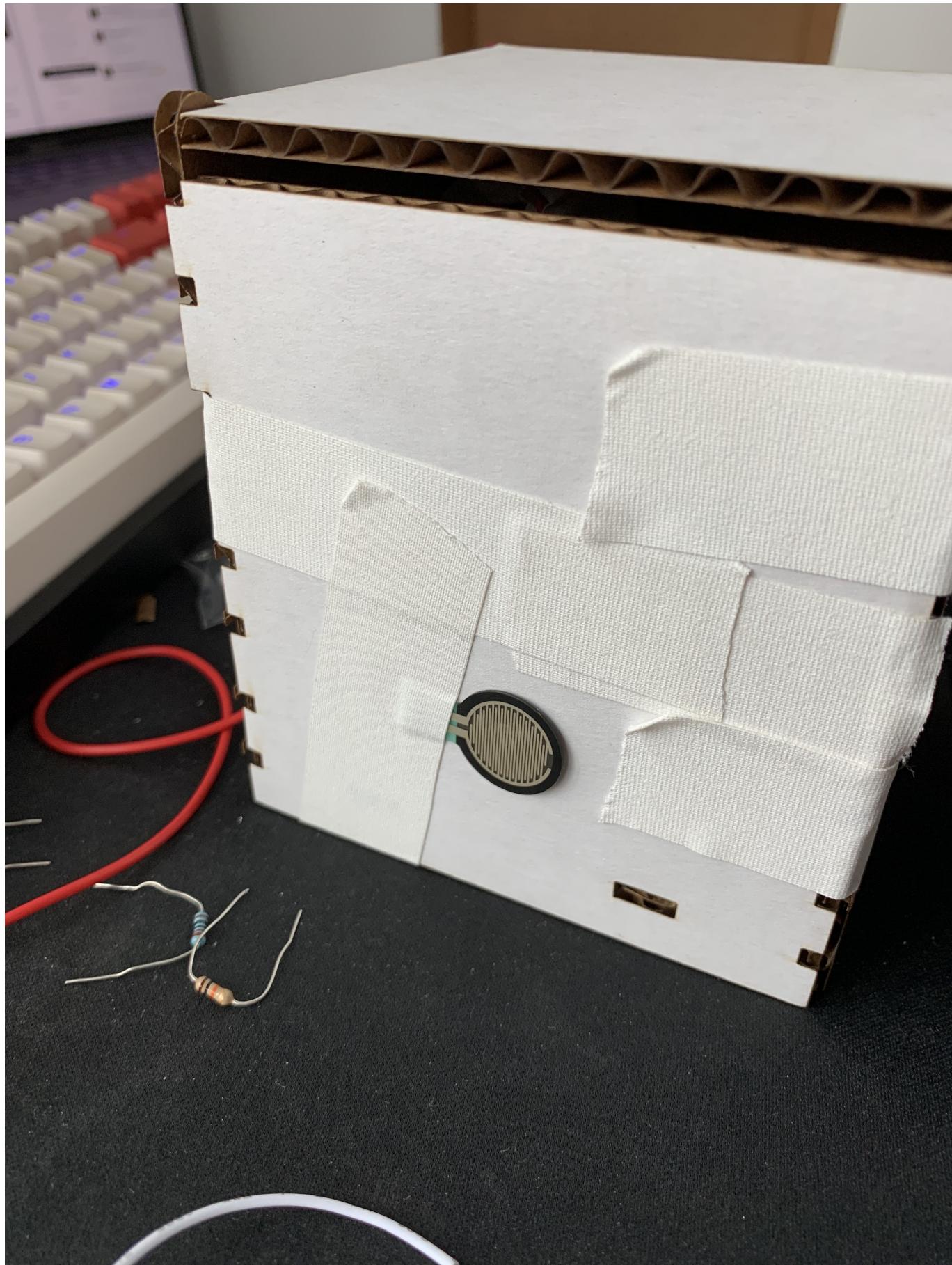


The Box









## In Action!

See [media/Jack\\_InAction.MOV](#)! The Jack is triggered using the FSR at the back of the box. Applying a small amount of force will actuate the sensor and cause the Jack to pop up!