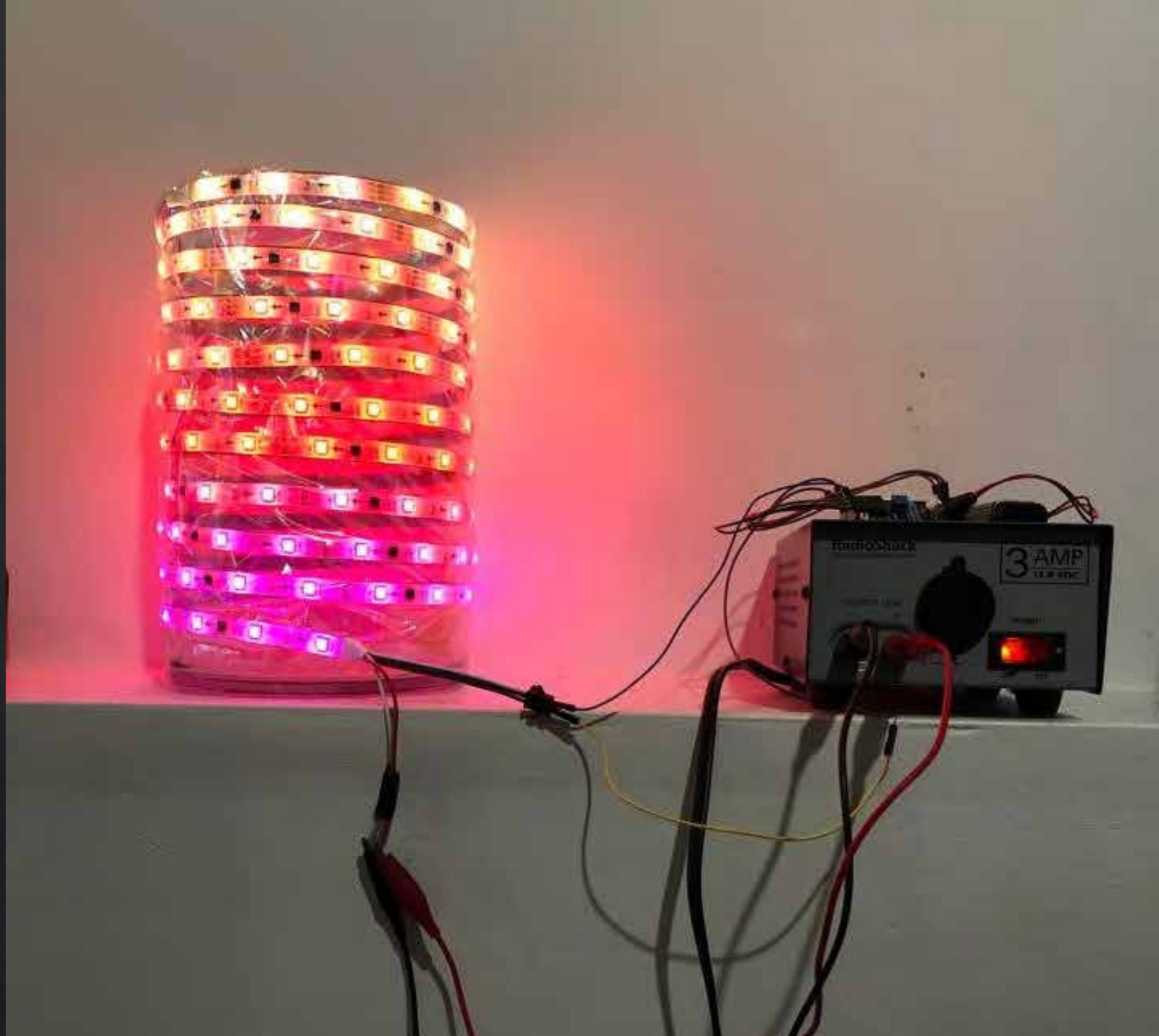


# Sound Controlled Neopixels with Arduino

By: Elizabeth  
Brown



# Project Description

- Neopixel Lights: Individually addressable RGB LED's
- Arduino: Single board microcontroller that controls color of LED's
- Lamp has two functions:
  - Mood Lighting
  - Sound Reactive Lighting



Source: Adafruit Lab

# Components

- Arduino Uno
- 12V Power Source
- 150 Neopixel LED Strip (WS2811)
- Sound Sensor (KY-038)
- 550 Ohm Resistor
- 1000uf Capacitor

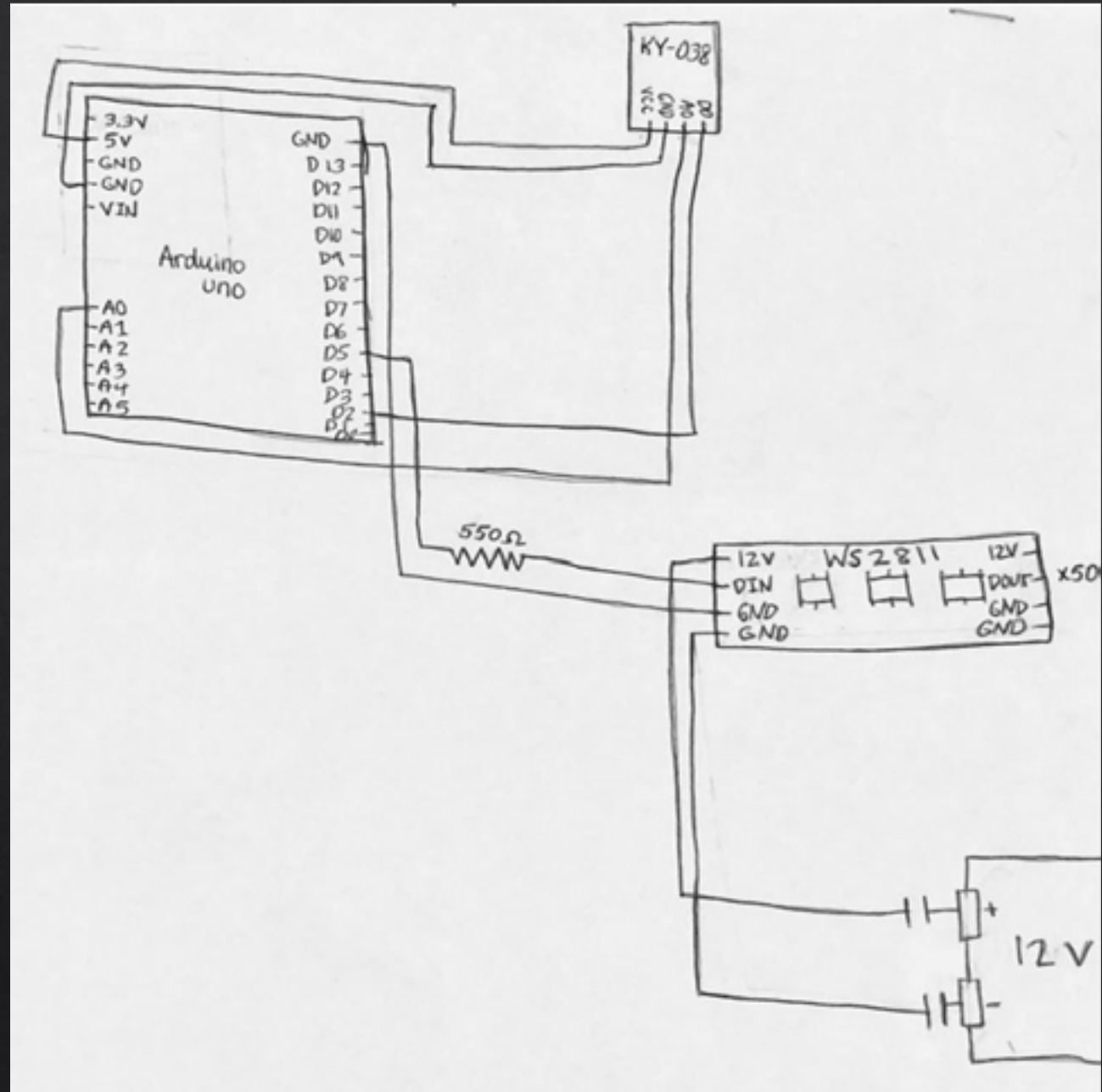


Image Drawn by Me

# The Process

## Research

- Using 5V Arduino with 12V LED Strip
- Making circuit
- Using sound sensor

## Obtaining proper parts

- Resistors and capacitors
- Power source
- Sound sensor

## Coding

- Arduino IDE
- FastLED and Adafruit Neopixel libraries
- Altering Code

## Building Lamp

- Perfecting display

# Sound Reactive Neopixels

## Demonstration #1

Source code by PrinceTronics

Sample Music by [OfficialDripzMusic](#)



# Neopixel Mood

## Demonstration #2

Source code by Matt Nupen



# Obstacles

- Ordered wrong parts
  - LED Strip
  - MOSFETs
- Scared of blowing up Arduino
  - Building circuit with limited references
- Difficult to code
  - Unfamiliar syntax
  - Clap circuit



```
ColorPalette | Arduino 1.8.8
File Edit Sketch Tools Help

ColorPalette

CRGBPalette16 currentPalette;
TBlendType currentBlending;

extern CRGBPalette16 myRedWhiteBluePalette;
extern const TProgmemPalette16 myRedWhiteBluePalette_p PROGMEM;

void setup() {
  delay( 3000 ); // power-up safety delay
  FastLED.addLeds<LED_TYPE, LED_PIN, COLOR_ORDER>(leds, NUM_LEDS).setCorrection( TypicalLEDStrip );
  FastLED.setBrightness( BRIGHTNESS );

  currentPalette = RainbowColors_p;
  currentBlending = LINEARBLEND;
}

void loop()
{
  ChangePalettePeriodically();

  static uint8_t startIndex = 0;
  startIndex = startIndex + 1; /* motion speed */

  FillLEDsFromPaletteColors( startIndex);
```

Code above written by FastLED Project

# What I Learned

- **Arduino UNO and electronics**
- **Circuits**
  - **Components**
  - **Drawing schematics from scratch**
- **Arduino IDE syntax**
  - **C++ language**
  - **Libraries**
  - **Splicing code**





# Changes

**Do more with sound sensor**

**Less bulky power source**

**Custom lamp shade**

**Go deeper into coding Neopixels**

# Works Cited

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