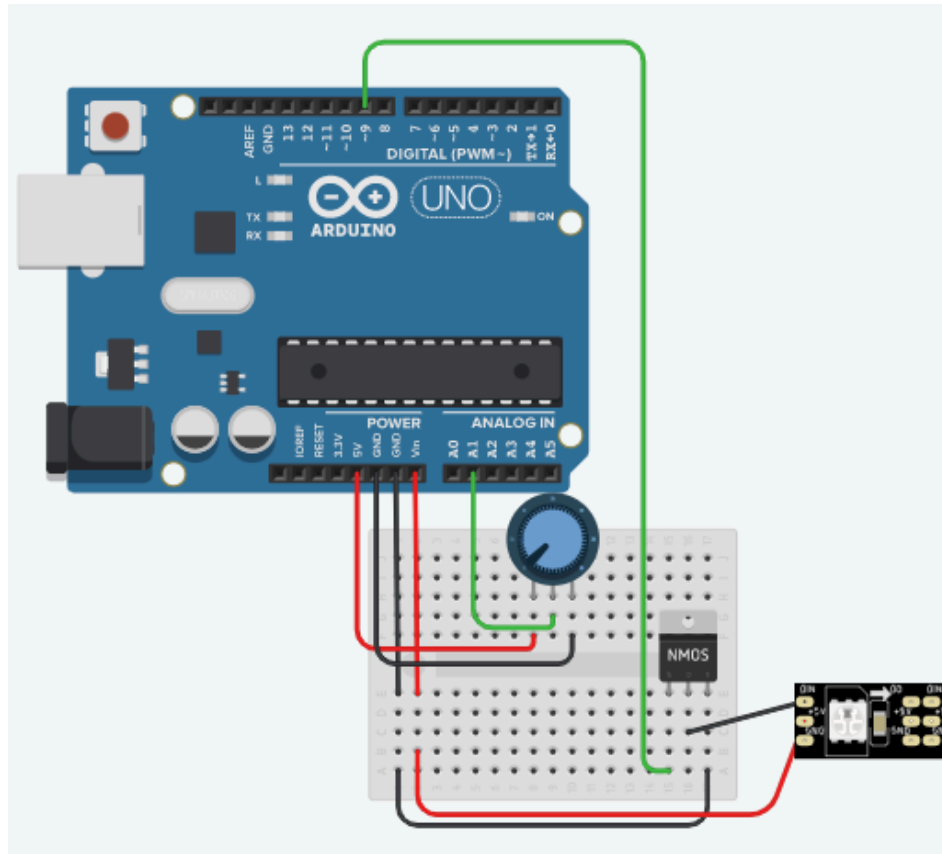


Create a stroboscope with Arduino (Part 4)

In part 3 we created a circuit and a program with which we can change the LED strip's frequency with a potentiometer. Now we will use this construction to shed light to a fan.

Step 1

Create the circuit shown in this figure:



Step 2

We want the potentiometer to be able to change the frequency of the LED Strip from 10Hz to 100Hz (while the LEDs to be ON for 0.1ms = 100μs). Can you change the code in order to do that?

```
const int ledPin = 9; // the number of the LED pin
const int potPin = A1; //pin A1 to read analog input
unsigned long previousMicros = 0;    // will store last time LED was updated
long timeOn = 1000;
long timeOff = 19000;

void setup() {
  // set the digital pin as output:
  pinMode(ledPin, OUTPUT);
  pinMode(potPin, INPUT); //Optional
}

void loop() {
  unsigned long currentMicros = micros();
```

```
int val = map (analogRead(potPin),0,1023,10,50);
timeOn = 1000;
timeOff = (1000000./val) - timeOn;

if (currentMicros - previousMicros >= timeOn + timeOff) {
  previousMicros = currentMicros;
  digitalWrite(ledPin, HIGH);
}else if(currentMicros - previousMicros >= timeOn){
  digitalWrite(ledPin, LOW);
}
}
```

Step 3

Take a small fan (i.e. a fan that works with a USB, a computer fan). All these fans have a specific rotation speed (rpm: Rotations Per Minute). Light the fan with the LED strip. Change the frequency of the LED strip with the potentiometer. At some frequencies the blades are seen as stationary.

[Hint: you can stick a small sticker on one blade.]

