Making a Force Sensor/ a Button with Velostat & Conductive Fabric
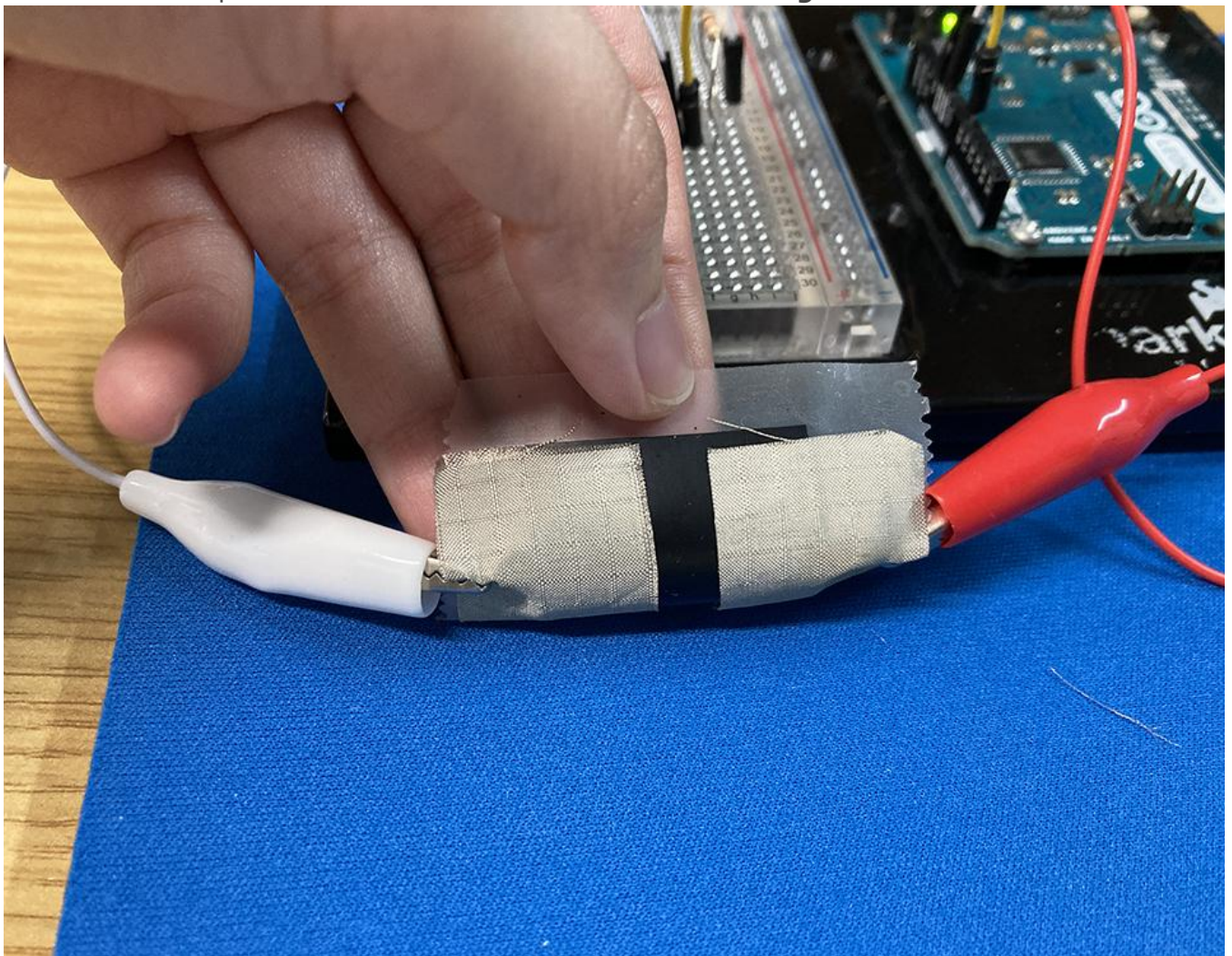
What is a Velostat and Conductive Fabric?

Velostat (a.k.a. Linqstat) is a thin, flexible, pressure-sensitive plastic sheet made with carbon black. It's a piezoresistive material — its electrical resistance changes when pressure is applied.
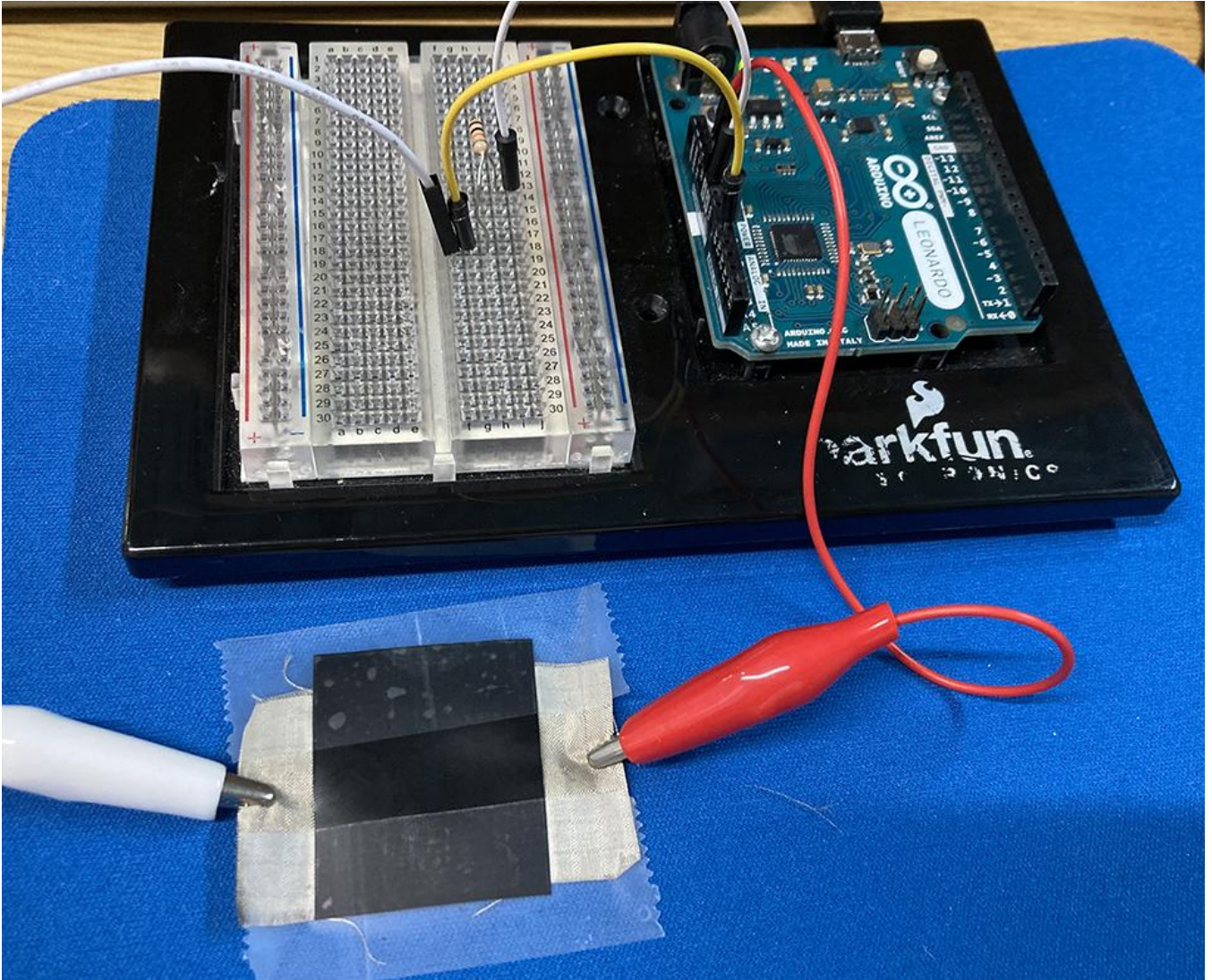
Conductive Fabric is a textile material (woven or non-woven) with conductive threads or coatings, like silver, copper, nickel, or carbon. It conducts electricity like a wire but is soft and flexible like fabric.

Assembling the Velostat and Conductive Fabric

1. You need **2** pieces of conductive fabrics and **1** piece of velostat.
2. Make sure the 2 pieces of conductive fabrics are **not touching each other**.
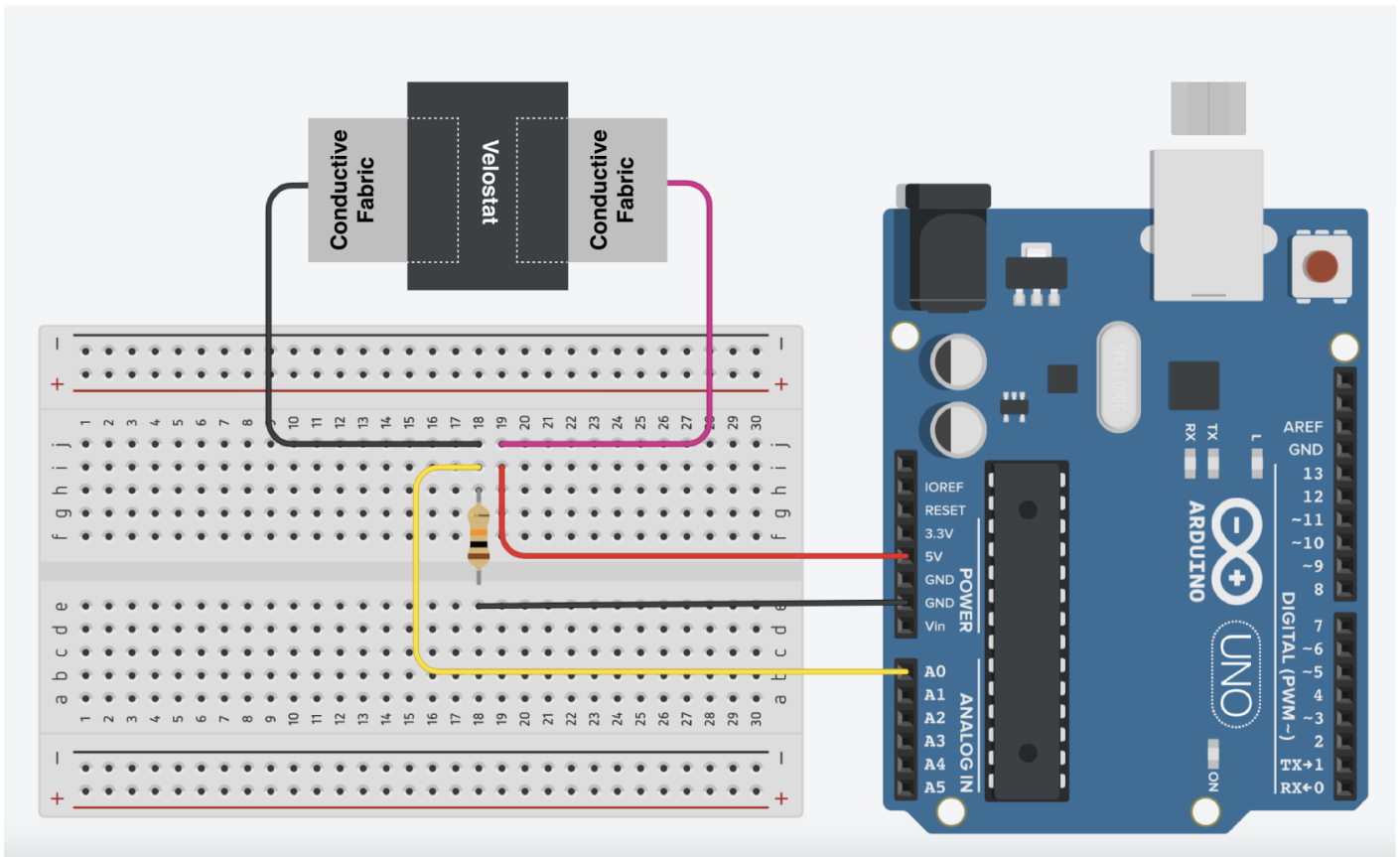
3. Tape them down so they are firmly in contact.

4. *(Optional)* Using a piece of non-conductive material as the base to hold everything together, preferably something spongy.

Making a Force Sensor

Wiring

Wiring up the sensor is simple, the sensor is unpolarized so it's doesn't matter which pin to 5V or GND.

1. Power (one end to 5V)
2. Ground (one end to GND with 10K resistor)
3. Signal (GND side to A0)

Code

This example measures the force applied to the velostat.

```
int sensorPin = A0;

void setup() {
  Serial.begin(9600);
}

void loop() {

  int sensorValue = analogRead(sensorPin); // gives analog values for the sensors
  Serial.println(sensorValue);

  delay (100); // change for the speed of serial monitor
}
```
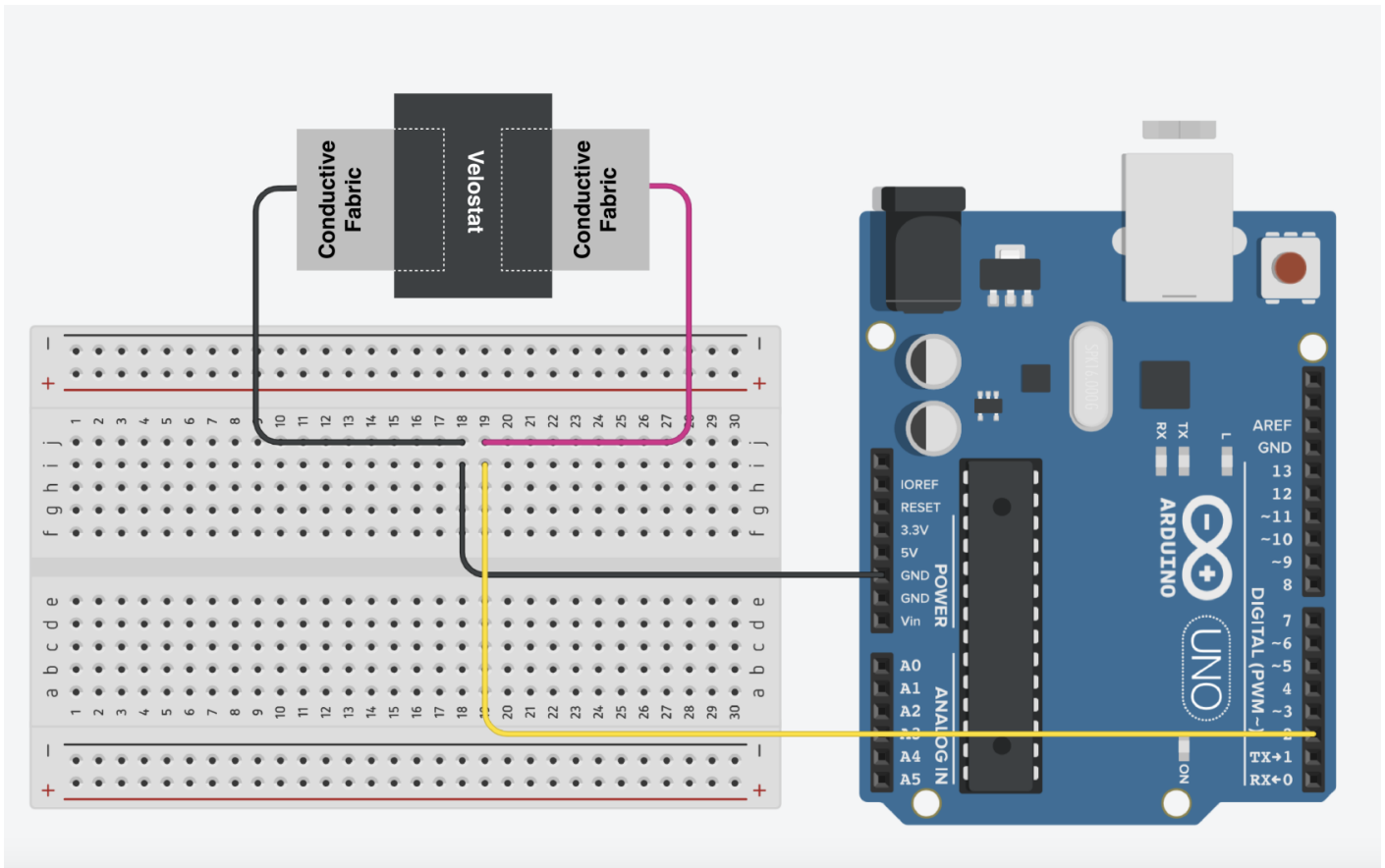
Making a Button

Wiring

We are using a Pull-Up Resistor button set up.

1. Ground (one end to GND)
2. Signal (one end to A0)

Code

This example detects if the velostat is pressed.

```
int buttonPin = 2;
int buttonState;

void setup() {
  // put your setup code here, to run once:
    Serial.begin(9600);
    pinMode(buttonPin, INPUT_PULLUP);


}

void loop() {
  // put your main code here, to run repeatedly:
  buttonState = digitalRead(buttonPin);
  Serial.println(buttonState);
```

```
  delay (100); // change for the speed of serial monitor


}
```