Pokemon Kids Workshop

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The Pokemon are Happy in Pokepark

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Oh no, the Pokemon escaped!

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Let’s go round up the Pokemon!

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Some Pokemon are hard to catch!

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So we will need some tools

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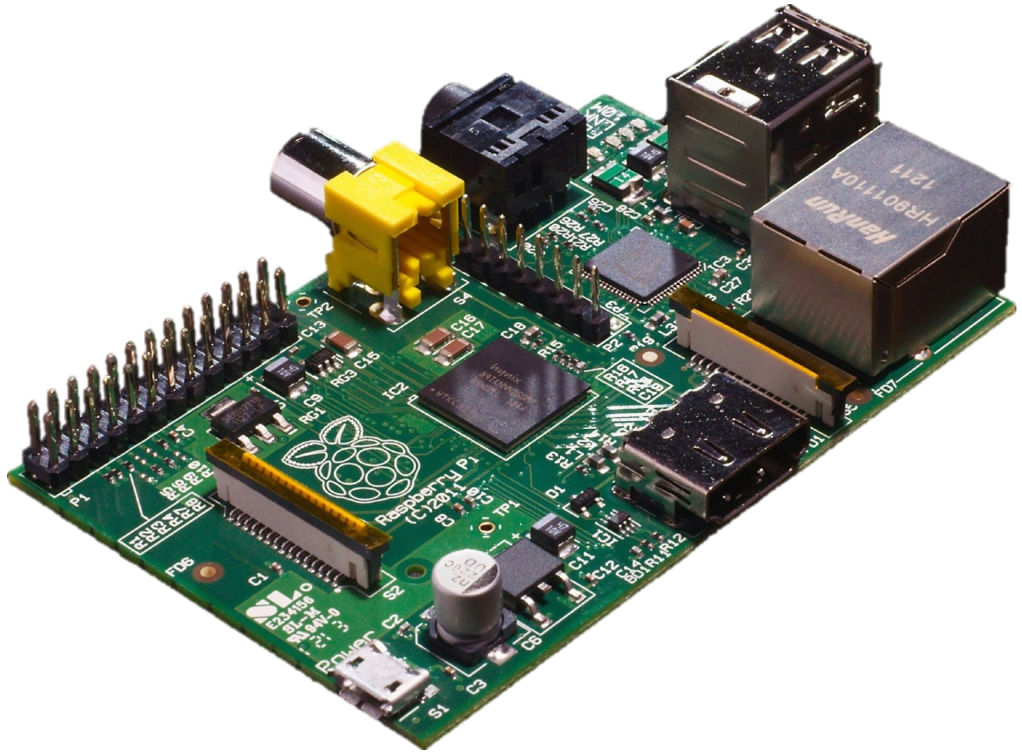
And maybe Java, Raspberries, and Pie!

Raspberry Pi

=



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Pis are Affordable

$35

A Cake

Legos
(but just a small set)

1 Box of Diapers

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Electronic Safety!

- Unplug from wall before wiring
- Get rid of static by touching a metal surface
- Don't touch exposed wires/metal
- Never remove/insert SD Card while power is on

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Assembly Demonstration

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Running the ZombieTime Application

Change directory to the project folder

```
> cd PokeTime
```

Run the build script

```
> sudo ant
```

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Time to Assemble

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Let’s use a Pokeball

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default.jpg

But all we can afford… is a PokeButton

$$$$

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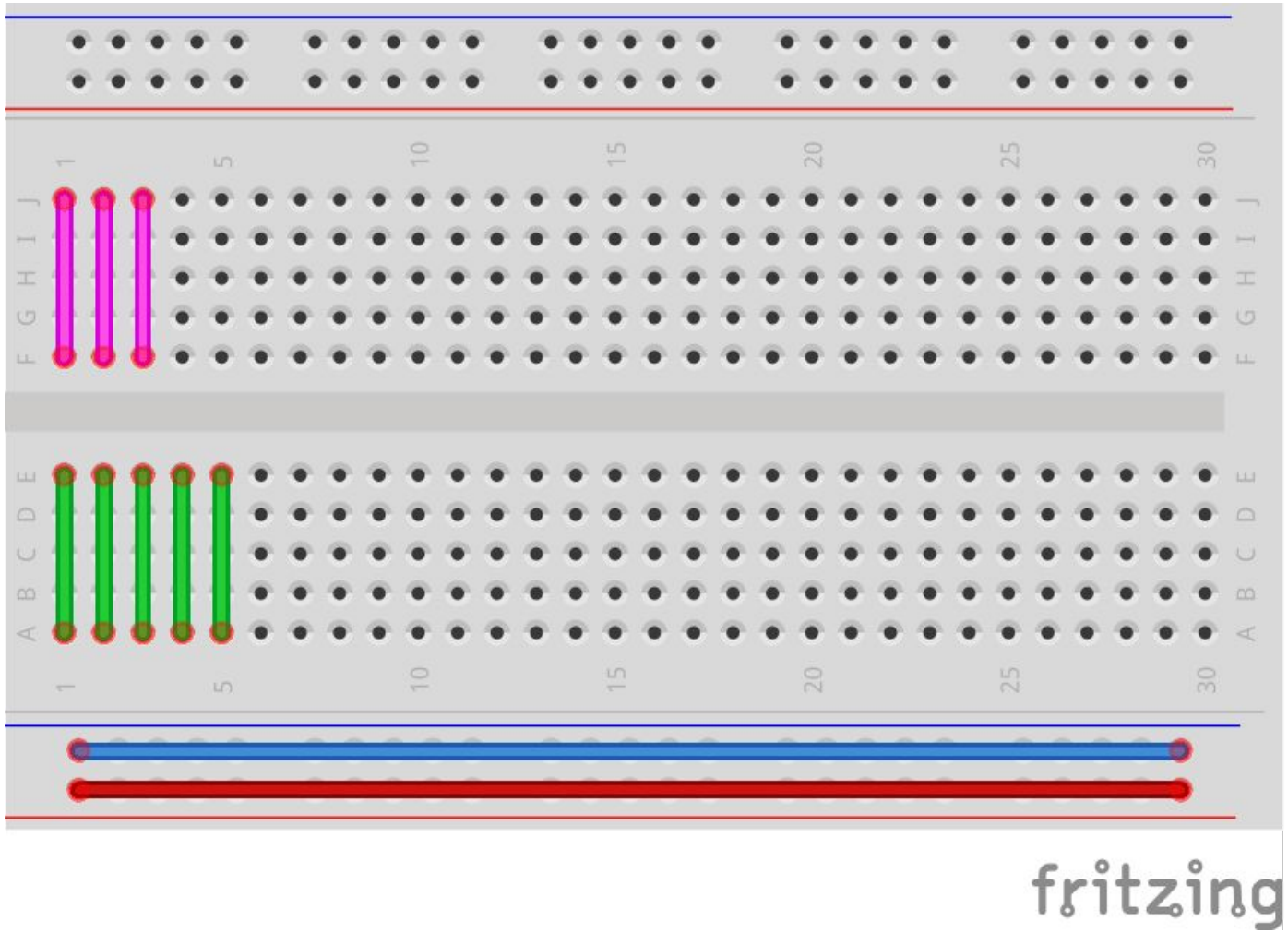
How Breadboards Work



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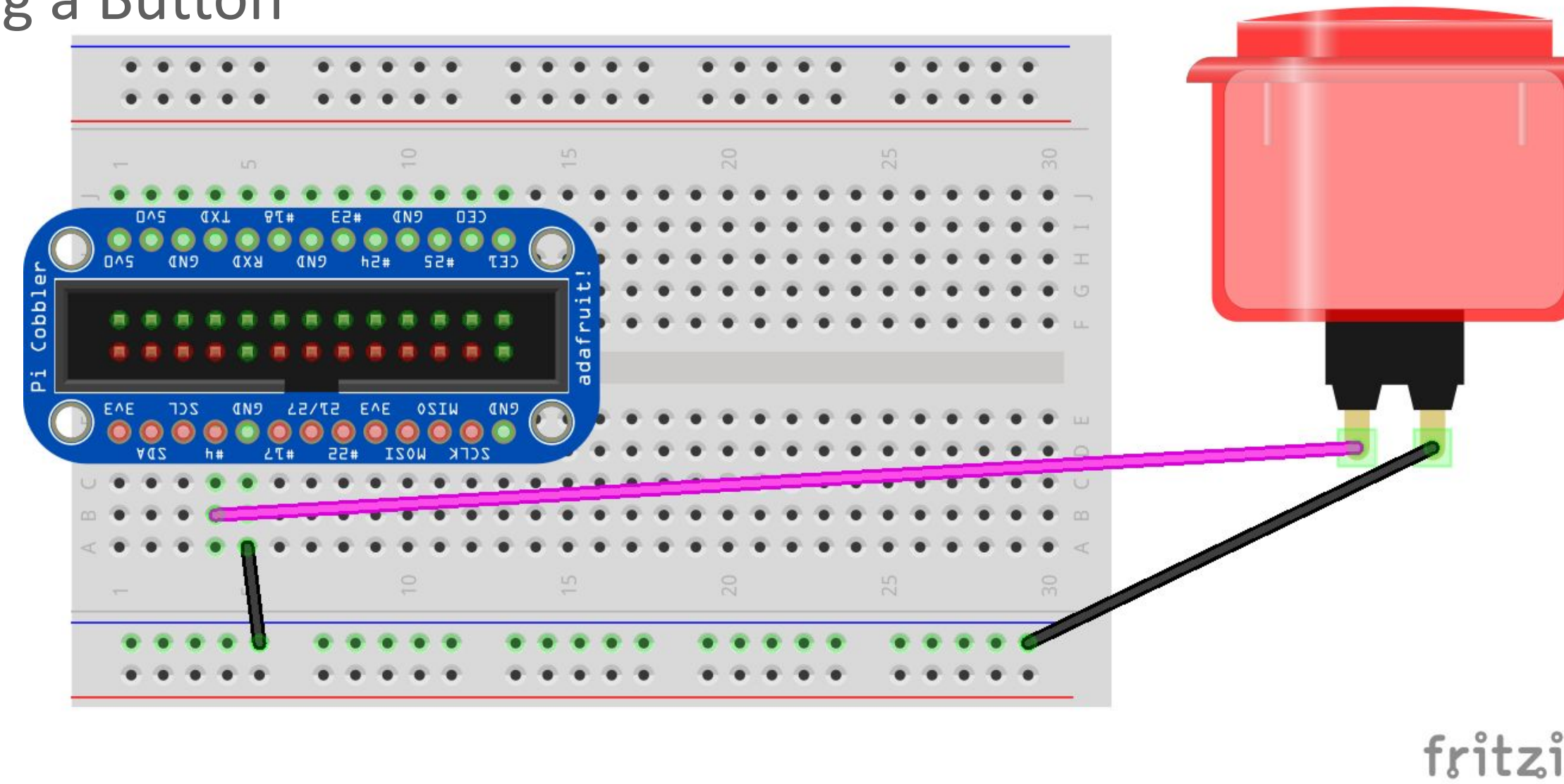
Wiring a Button



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Attacking when you press the button

```
final GpioPinDigitalInput myButton =
    gpio.provisionDigitalInputPin(RaspiPin.GPIO_07,
                                  PinPullResistance.PULL_UP);
myButton.addListener(new GpioPinListenerDigital() {
  @Override
  public void handleGpioPinDigitalStateChangeEvent
     (GpioPinDigitalStateChangeEvent event) {
    boolean buttonPressed = event.getState().isLow();
    if (buttonPressed) Main.display("Button Pressed");
    Main.attack(3);
   }
});
```

HP 30

HP 29

Flee

Munchlax

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Hacking the Code

Run the nano text editor:

```
> nano src/sample/SensorFactory.java
```

Save your changes:

```
> Control-O Enter
```

Exit Nano:

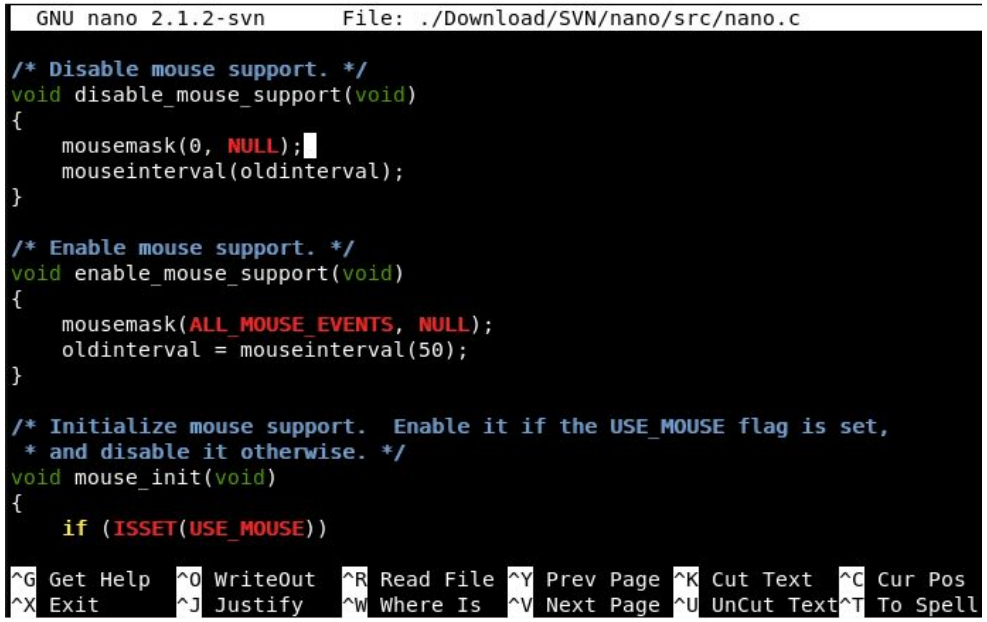
```
> Control-X
```

Delete old files (if timestamps are bad):

```
> sudo ant clean
```

Compile/Run:

```
> sudo ant
```




```
Main.attack(3);
```

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Time to Wire Your Button!

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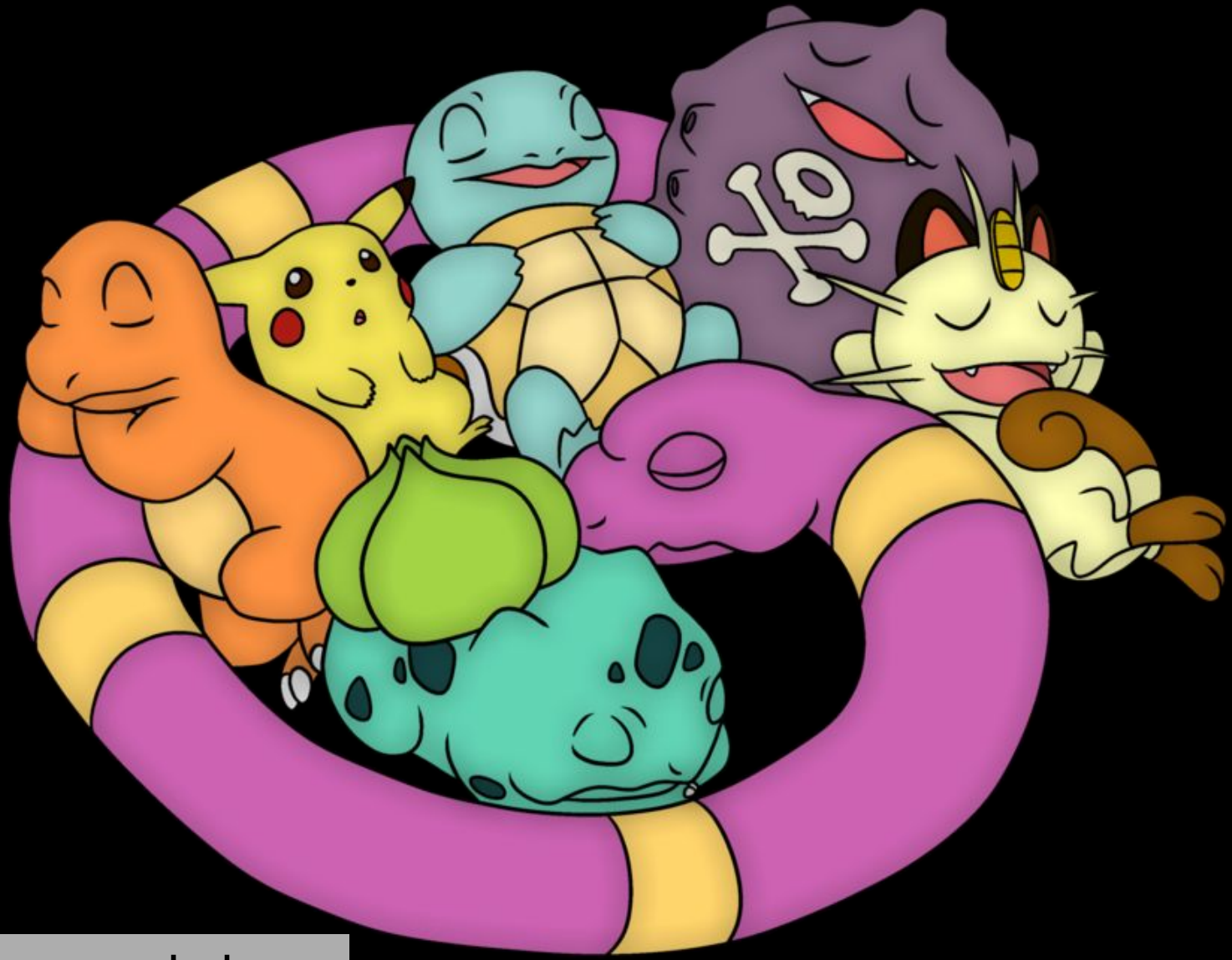
Pokemon get sleepy at night...



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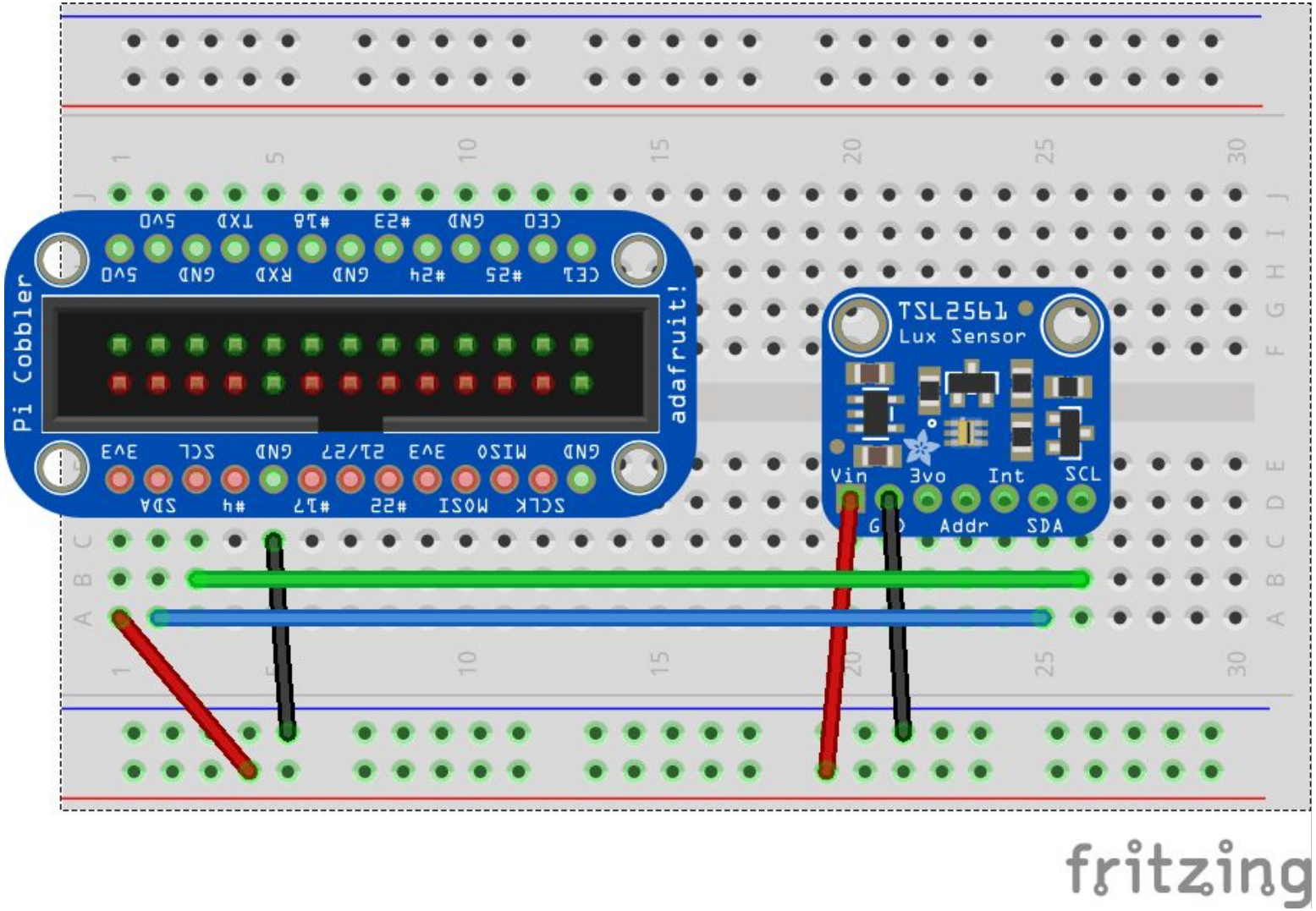
Wiring a Light Sensor



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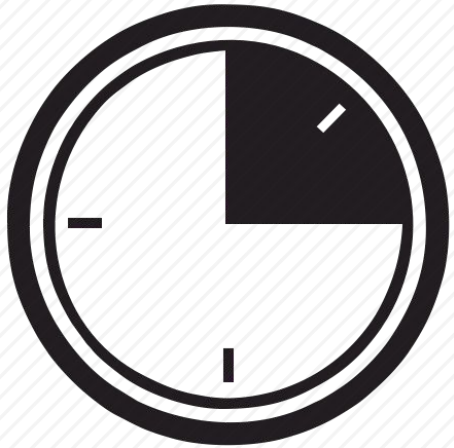
Making it Night Using a Light Sensor

```
Tsl2561 lightSensor = new Tsl2561(device);
Timeline lightTimeline = new Timeline(
        new KeyFrame(Duration.seconds(10), actionEvent -> {
    double lux = lightSensor.getLux();
    Main.display("lux = " + lux);
    if (lux < 3) {
        night.setValue(true);
    } else {
        night.setValue(false);
    }
}));
```

Hurry Up and Make it Night!



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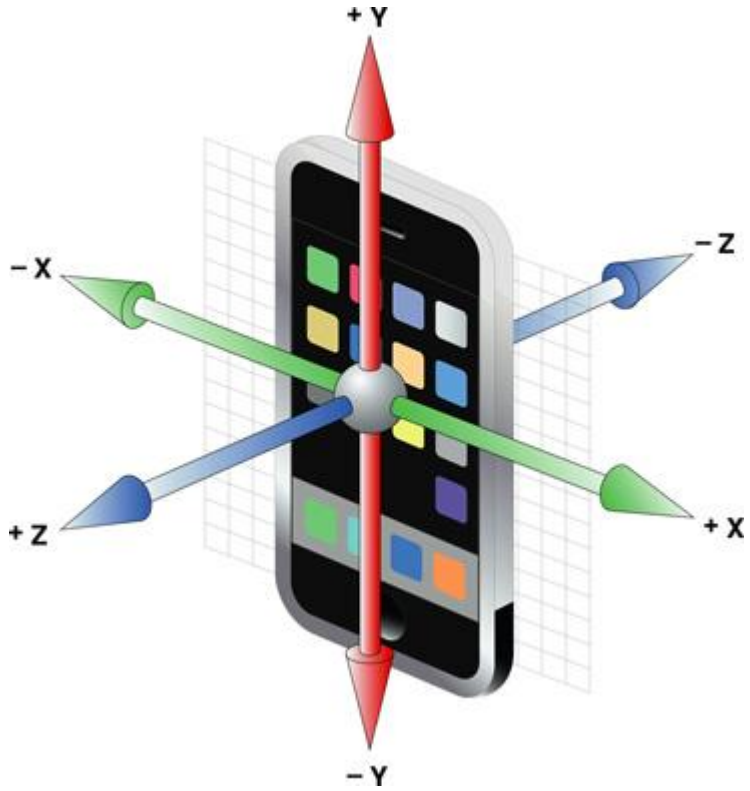
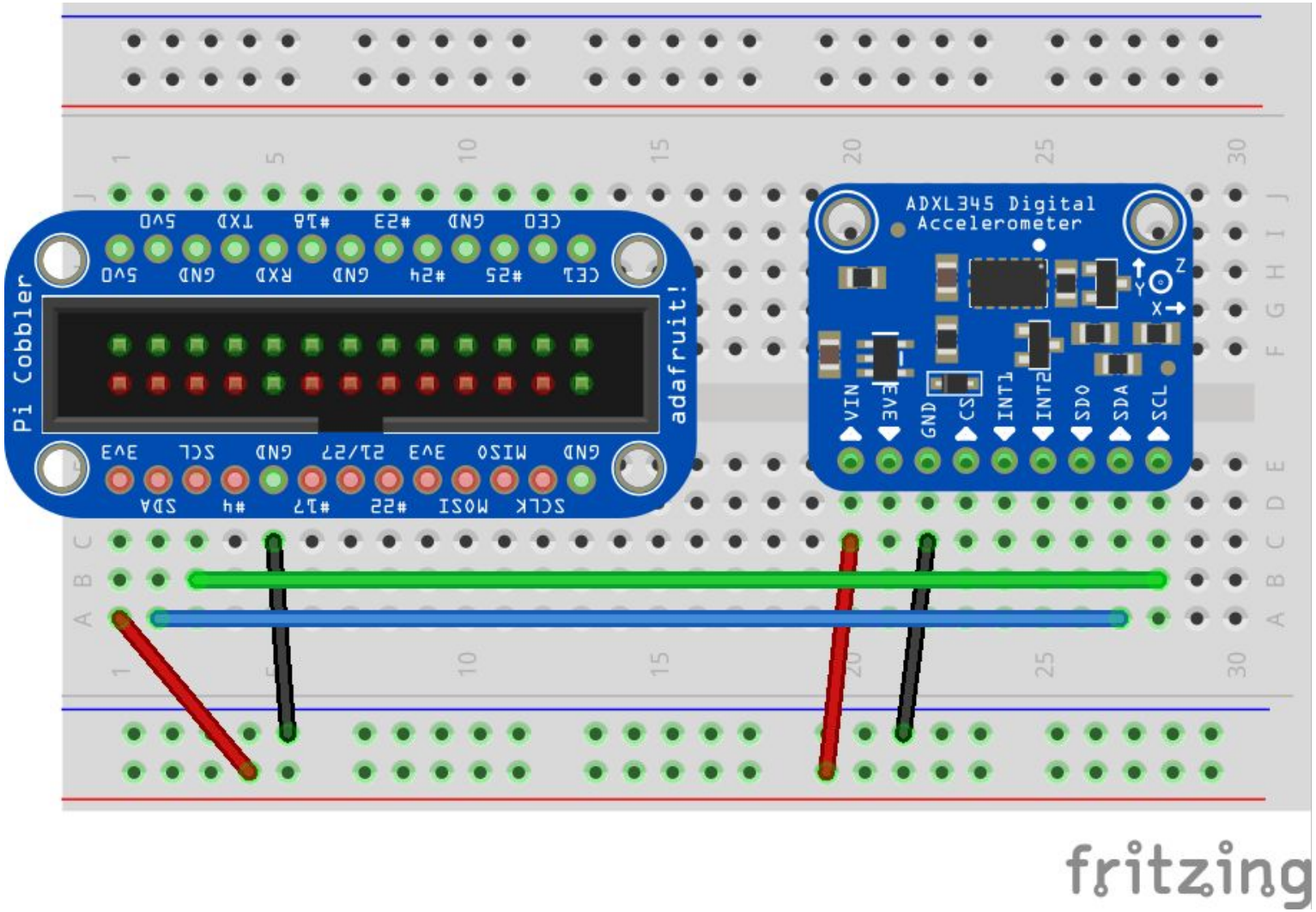
Accelerometers let you know orientation

- X = Left and Right
- Y = Forward and Backward
- Z = Up and Down



Wiring an Accelerometer



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Create an earthquake using an accelerometer

```
ADXL345 gyro = new ADXL345(bus);
gyro.init(gyro.X, 4);
lastGyroX = gyro.X.getRawValue();
Timeline accelerometerTimeline = new Timeline(
        new KeyFrame(Duration.seconds(1), actionEvent -> {
    float x = gyro.X.getRawValue();
    if (!Main.earthquake.getValue()) {
        if (Math.abs(x - lastGyroX) > 2000) {
            System.out.println("Earthquake!");
            Main.earthquake();
        }
    }
    lastGyroX = x;
}));
```

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Thanks for Attending the Workshop!

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