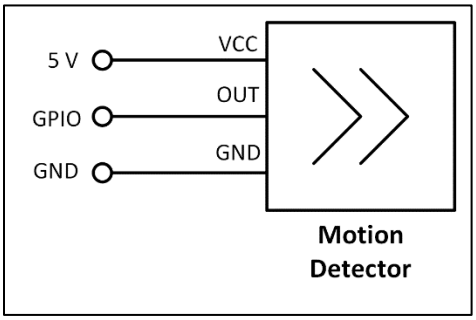
Using the Picademy Parts Kit Motion Sensor

This is a pyroelectric (passive) infrared motion detector of the kind that's used in burglar alarms, motion-activated lights, and similar things. You could use it to light an LED, but you could also use it with a Pi camera or webcam to take a picture when motion is detected. Or something else.

There are several flavors of this gadget. They look alike, but some are wired differently than others. The first thing to do is hold the circuit board firmly by the edges and lift the white plastic lens straight up from the board. It's just held there by friction, so give it a tug. Under the lens are three labels that correspond to the pins on the bottom of the board. They are V_{CC} (power), OUT, and GND. The power pin might be labeled 5V instead of V_{CC}. Carefully note which one is V_{CC}. Maybe even put a little dot on the edge of the board with a magic marker. Press the lens back into place. *Do not rely on the diagrams in this handout, or on the web, to tell you which pin is V_{CC}.*



After you have determined which pin of the motion sensor is V_{CC}, connect GND on the motion sensor to GND on the Raspberry Pi, OUT to a numbered GPIO pin, and V_{CC} to 5V. You will need to adjust your Python code to reflect the GPIO pin number you used; the example below uses GPIO 17.

The motion sensor has adjustments for sensitivity and delay time, and a jumper block for "retriggering." The explanations are beyond the scope of this handout, but Adafruit has provided a very nice tutorial here: https://learn.adafruit.com/pir-passive-infrared-proximity-motion-sensor?view=all

```
# Import the MotionSensor library
from gpiozero import MotionSensor
from time import sleep
pir = MotionSensor(17)
while True:
    pir.wait_for_motion()
    print("Motion detected!")
    pir.wait_for_no_motion()
    print("Went away!")
```

More information about using the motion sensor is here:

https://gpiozero.readthedocs.io/en/stable/api_input.html#motionsensor-d-sun-pir

Note: the motion sensor is very sensitive. It may be difficult to get it to stop detecting motion in a crowded classroom.