Drums

This uses piezo-electric buzzers like the ones found in birthday cards. If you apply a changing voltage across them, the buzzer will vibrate and make a sound. If you vibrate the buzzer (by tapping it), it will generate a voltage. This can be detected by the Raspberry Pi.

Before you start

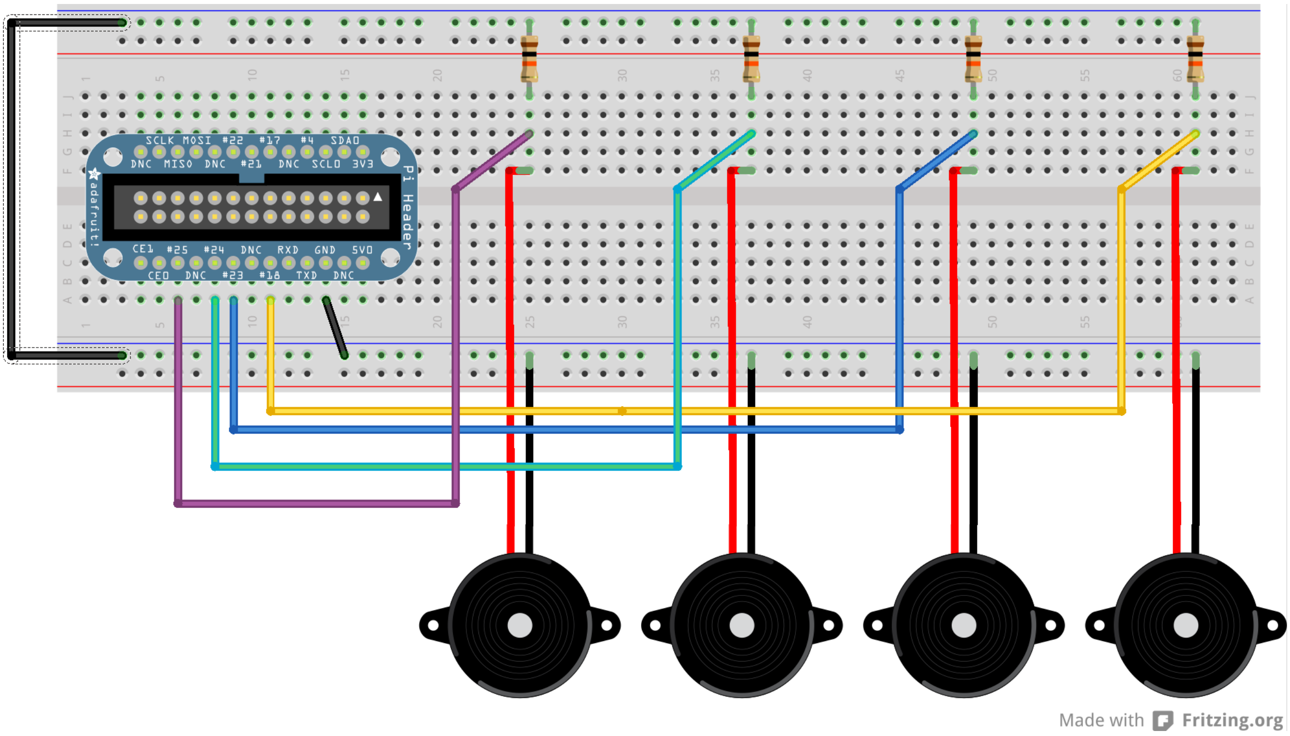
Set up the Raspberry Pi with PyGame and copy the sound files across.

You will need

- Four piezo-electric buzzers
- Four 10kΩ resistors
- A breadboard
- Some jumper leads for connecting things. You'll need mostly male-male, with some female-female to attach to the tilt switches.
- Speakers connected to the Pi's headphone jack to play the sounds.

Use either a Pi Cobbler or a Raspberry Leaf to help identify the pins. If you're using a Pi Cobbler, make sure that the coloured side of the ribbon in in the corner of the Pi. If you're not using a Pi Cobber, you'll need some extra female-female jumper leads to connect the Pi to the breadboard.

Make this circuit


SCLK MOSI #22 #17 #4 SDA0
DNC MISO DNC #21 DNC SCL0 3V3
CE1 #25 #24 DNC RXD GND 5V0
CE0 DNC #23 #18 TXD DNC
Pi Header
adafruit!
Made with Fritzing.org

Use pins 25, 24, 23, 18, GND

Enter this program

```
pi@blackberry:~$ cd pi-music
pi@blackberry:~/pi-music$ nano drums.py
```

Use `nano` to enter this code into drums`.py`

(Layout is important: use four spaces, not tabs, and make sure all the columns line up. Distinguish carefully between `()  []  {}  .  ,`)

```
import pygame
import RPi.GPIO as gpio

gpio.setmode(gpio.BCM)
pins = [25, 24, 23, 18]

drums = ['sounds/hihat.wav',
         'sounds/snare.wav',
         'sounds/slowdrum.wav',
         'sounds/maracas.wav']

pygame.mixer.init()

sounds = {}
for pin, wav in zip(pins, drums):
    sounds[pin] = pygame.mixer.Sound(wav)

def handle_sound(pin):
    sounds[pin].play()

for pin in pins:
    gpio.setup(pin, gpio.IN)
    gpio.add_event_detect(pin, gpio.RISING, callback=handle_sound,
                          bouncetime=100)

while True:
    pass
```

Play the drums

Run with

```
pi@blackberry:~/pi-music$ sudo python drums.py
```