

Hauntomation:

Automating Halloween with Python

Mike McGurrian



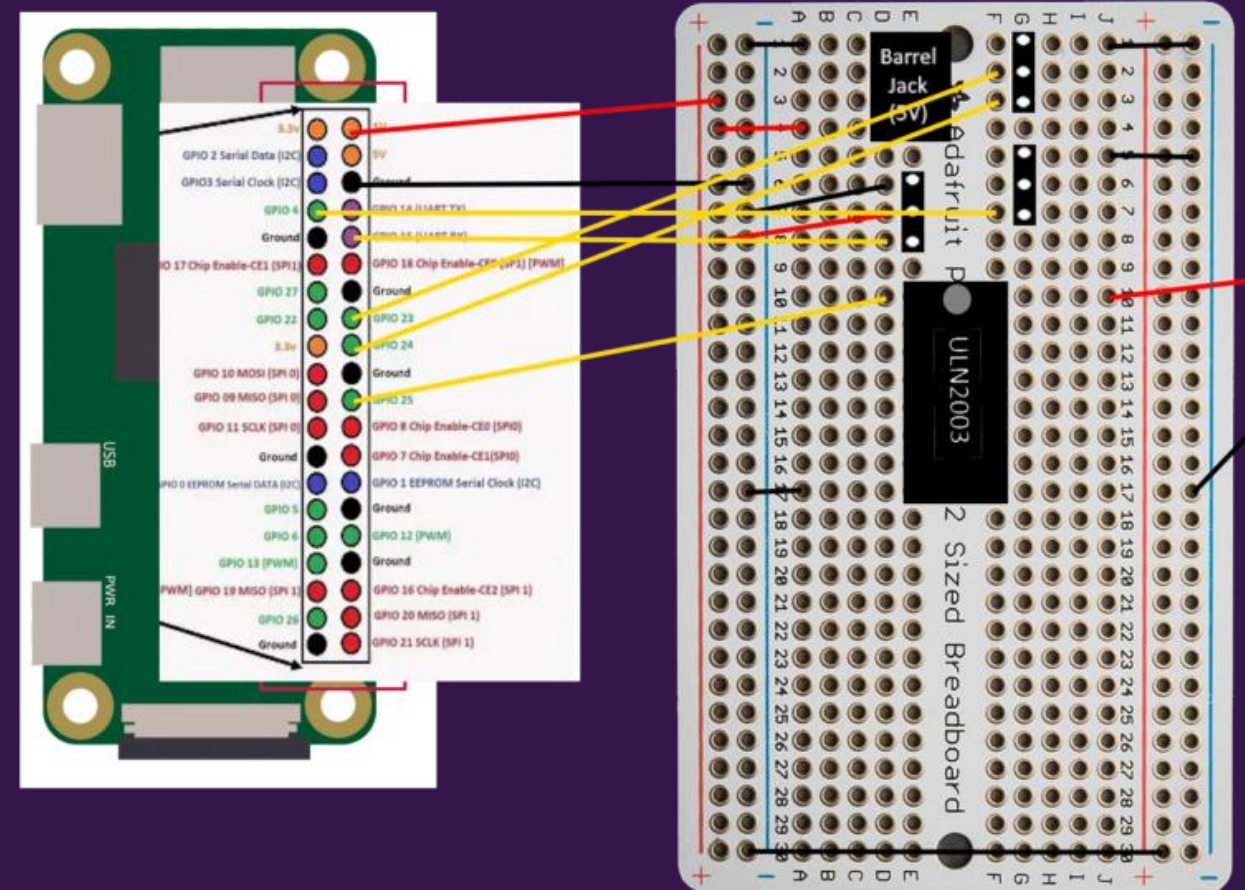
Control and Animate Props

- Combine with:
 - Raspberry Pi's
 - Microcontrollers
 - Sensors, such a passive infrared motion sensors (PIRs)
- Customize triggers, motion, audio, and sequencing
- Become the best Halloween house in your neighborhood!



Multi-Prop Trigger and Orchestration

- Control and coordinate up to 3 props from a single trigger
 - PIR sensor
 - Raspberry Pi
 - Switch closure for prop with a “try me” button
 - 3-wire servo connector for prop expecting a voltage trigger signal
 - 3-wire servo connector with two signal lines to control two functions on single prop



```
from gpiozero import
DigitalOutputDevice
from gpiozero import MotionSensor
import time

skel_talk = DigitalOutputDevice(23)
skel_try_me = DigitalOutputDevice(24)
grim_trigger = DigitalOutputDevice(25)
pir = MotionSensor(15)
```

```
while True:
    pir.wait_for_motion()
    skel_talk.on()
    skel_try_me.on()
    grim_trigger.on()
    time.sleep(0.2)
    skel_talk.off()
    skel_try_me.off()
    grim_trigger.off()
    time.sleep(30)
    grim_trigger.on()
    time.sleep(0.2)
    grim_trigger.off()
    time.sleep(50)
```

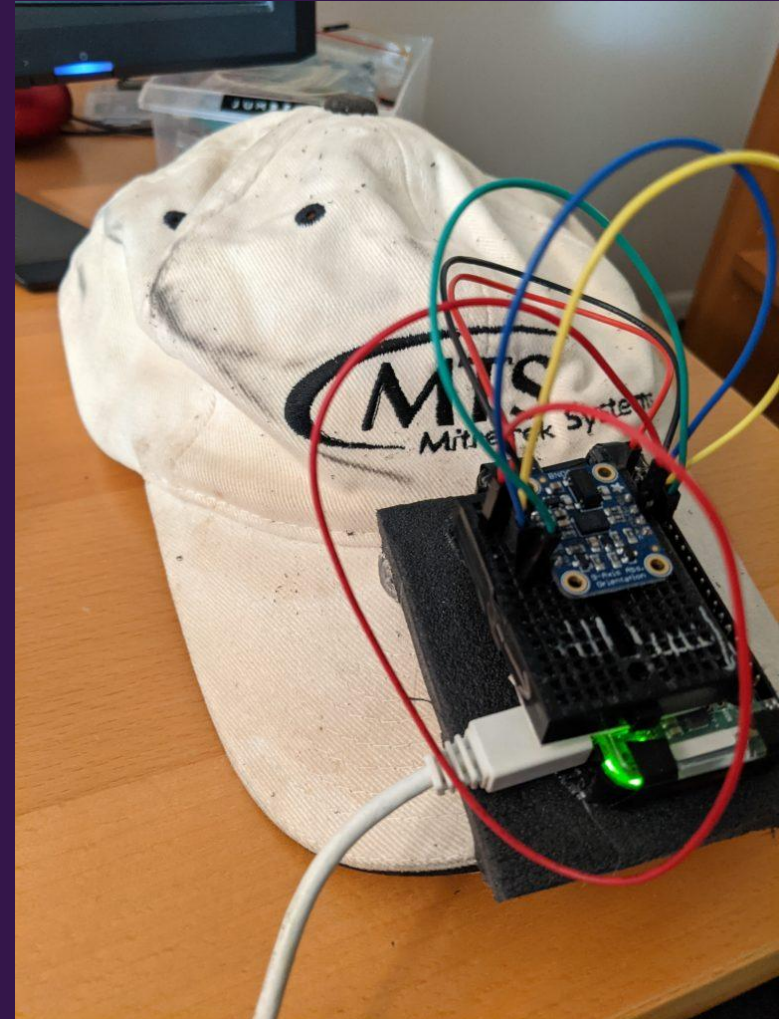
ChatterPi: Open Source Audioservo Controller

- Converts audio signal to servo commands
- Pi Zero replaces \$40-\$80 commercial controller boards
- Libraries include:
 - Pyaudio
 - Scipy's bandpass filter
 - numpy
 - GPIO Zero / PIGPIO



Wireless Motion Mapping

- Two Units: sensor and control
- Sensor had Pi Zero W and Adafruit IMU
- Communications via XMLRPC running over WiFi
- Control has Pi Zero W and Pololu Maestro Servo Controller



Wireless Motion
Capture of Head
Movement for
Real-Time Skull
Control

Other Projects from the Web



Eye Following Halloween Prop



Where You Come In: Python Resources for Halloween

- Public, crowd-sourced list of Python resources
 - Projects and demos
 - Python Packages
 - Useful libraries
 - Games
 - Etc.

Submit Python Resource for Halloween

Contribute your favorite Python-related libraries, tools, or platforms that are useful for anything Halloween related, but especially for developing, building, or operating animated Halloween props. All entries are moderated before being added to the public database.

Name of Resource *

Short answer text

Type *

Library

Software Tool

Platform / Ecosystem

Sample Code

Tutorial

Other:

Resources

- Crowd-Sourced Resources
 - Including submission form
- Blog posts
- GitHub links
- This presentation

