

THINGS

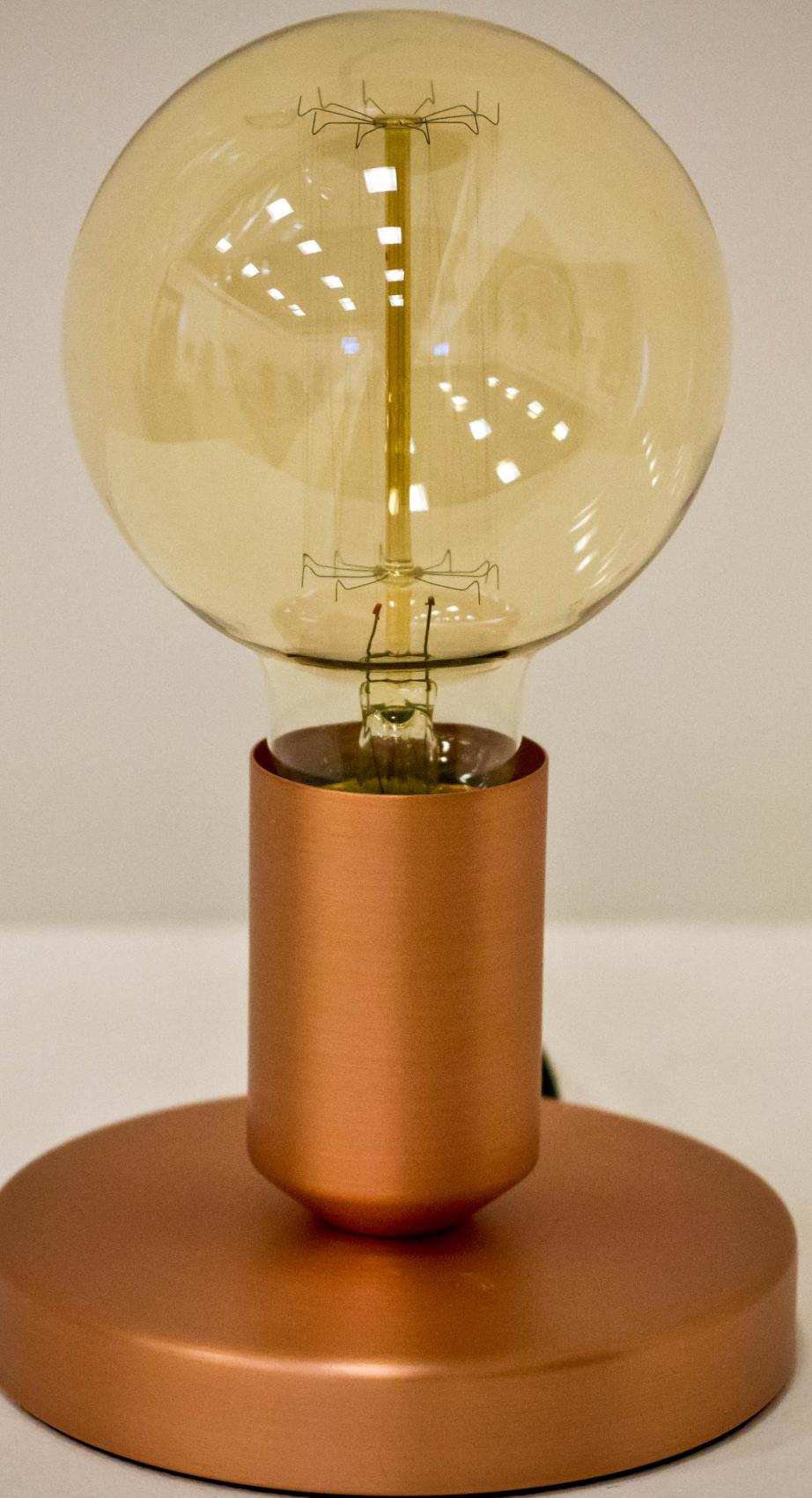
WHAT WE DONE

Starting points

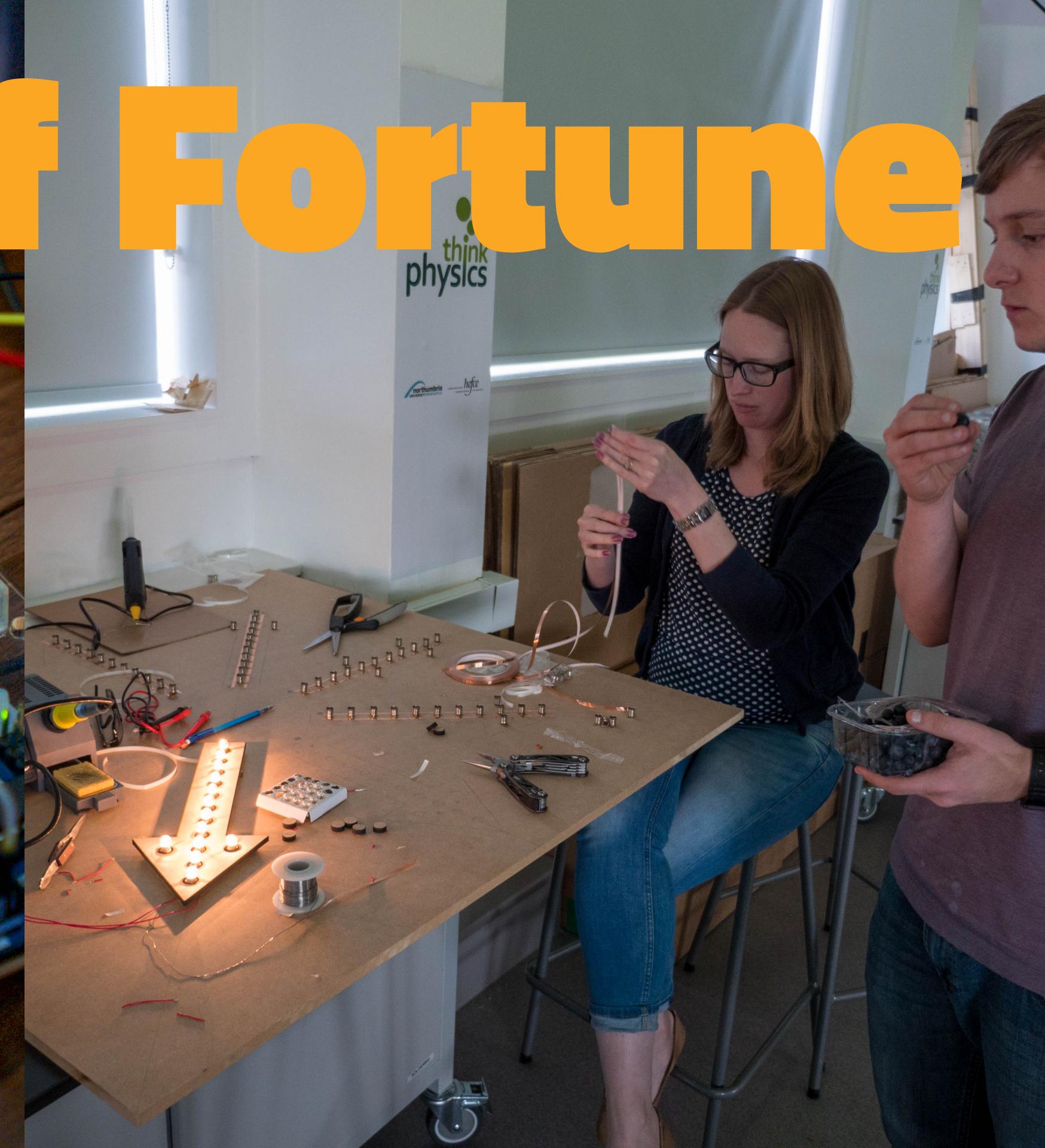
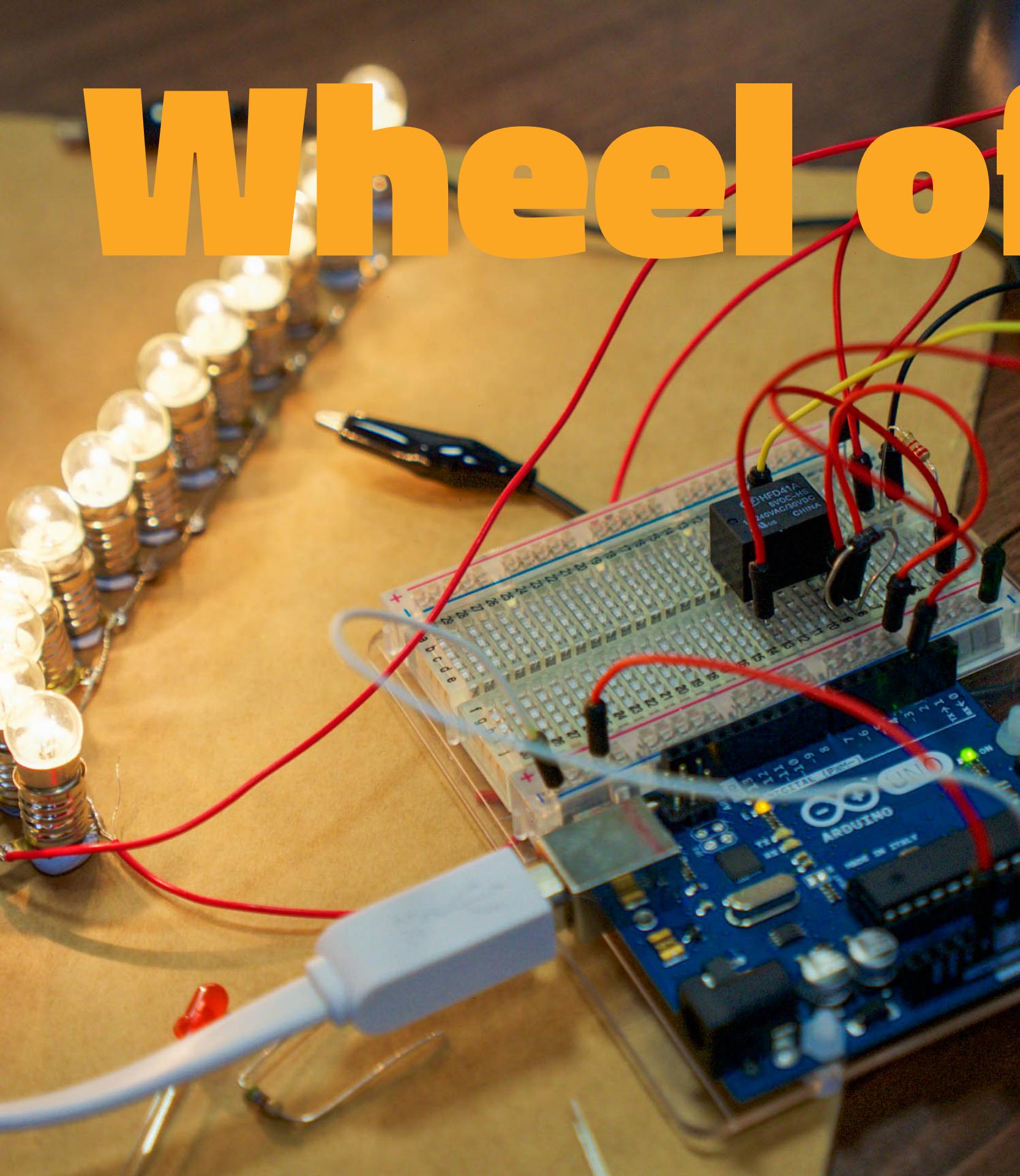
Terrible coding, mostly in C

...that's about it

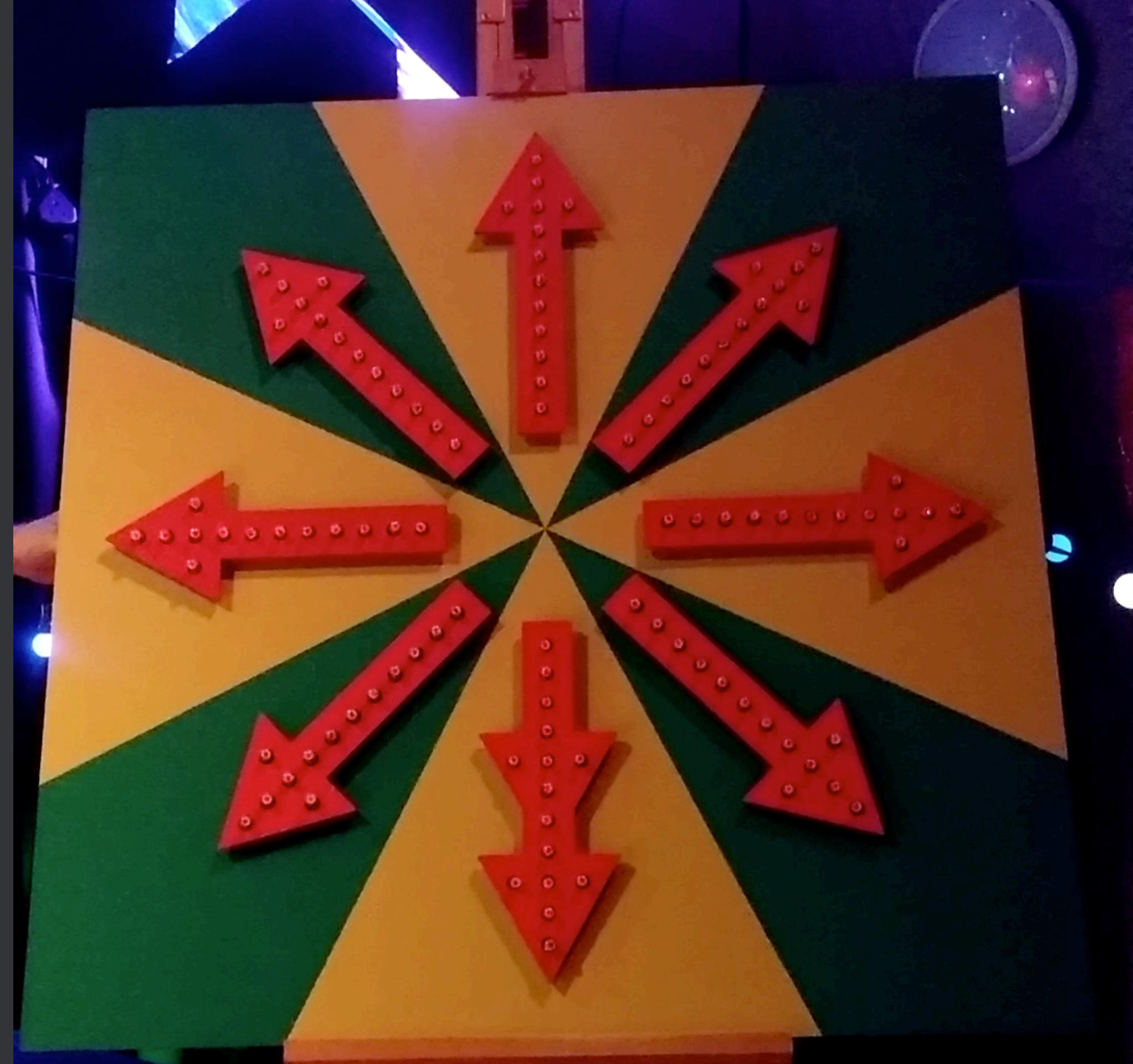
8'22"



Wheel of Fortune









Pendulum Wave

- Arduino / TouchBoard
- Capacitance sensors (analogue inputs)
- NeoPixels
- MIDI output / sound generation

But:

- Awful C which none of us understand
- Passive visitor experience

Light Wall

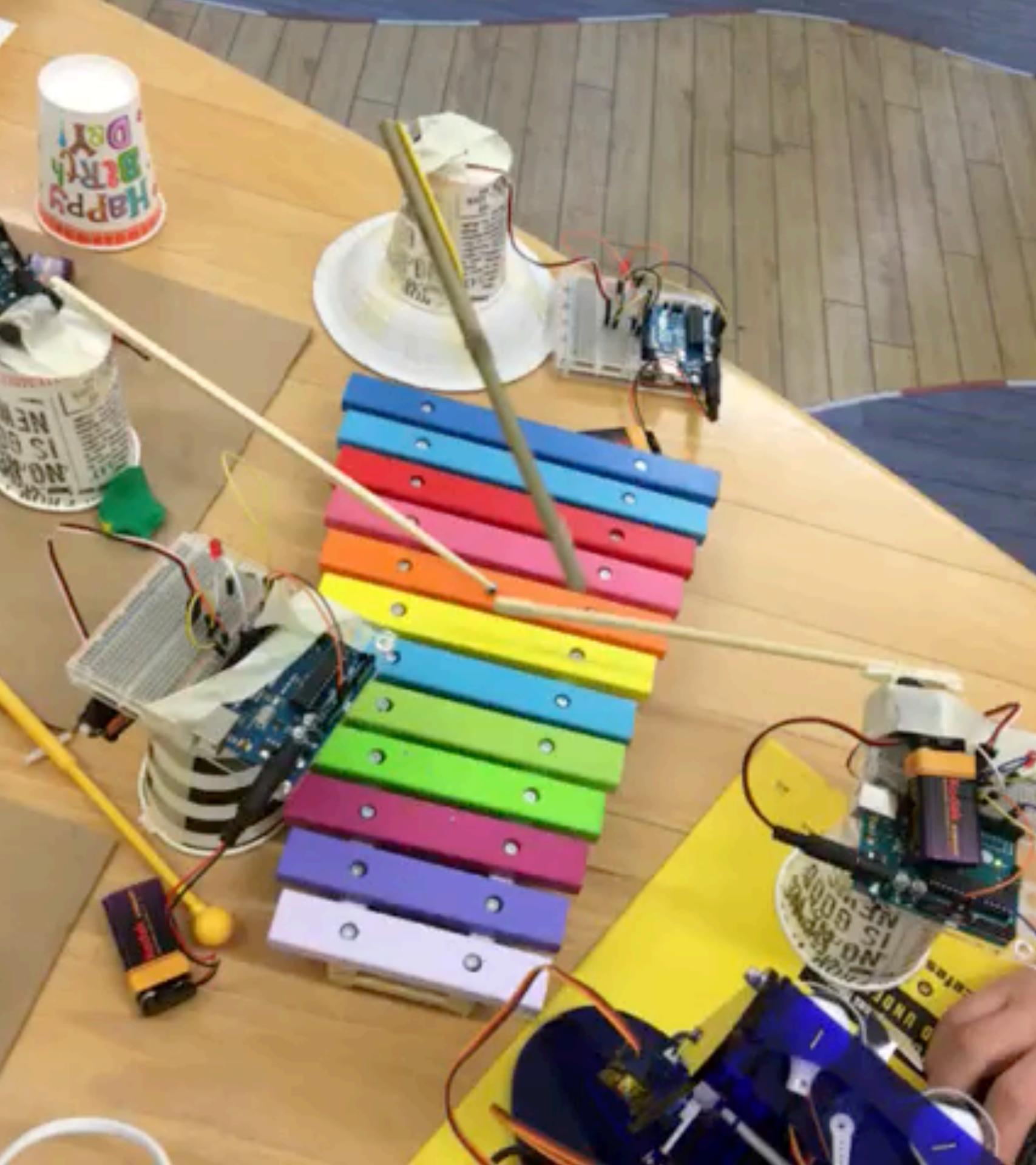
- Arduino/Trinket
- NeoPixel
- Power circuitry
- Analogue input
- ...
- Didn't read the docs
- Questionable hardware choices



think

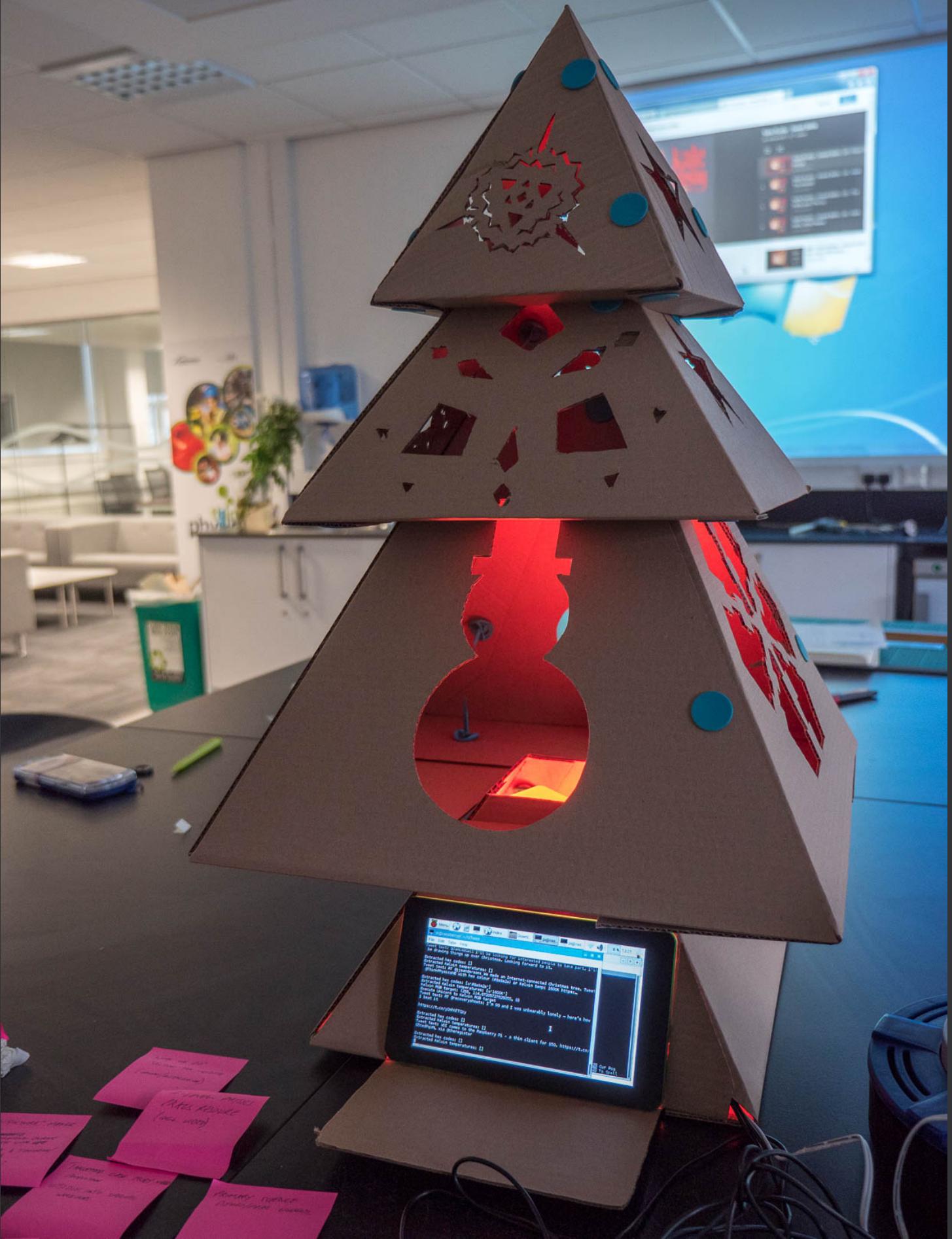
Robot Orchestra v1

- Arduino
- Servos
- Tinkering, with added electronics



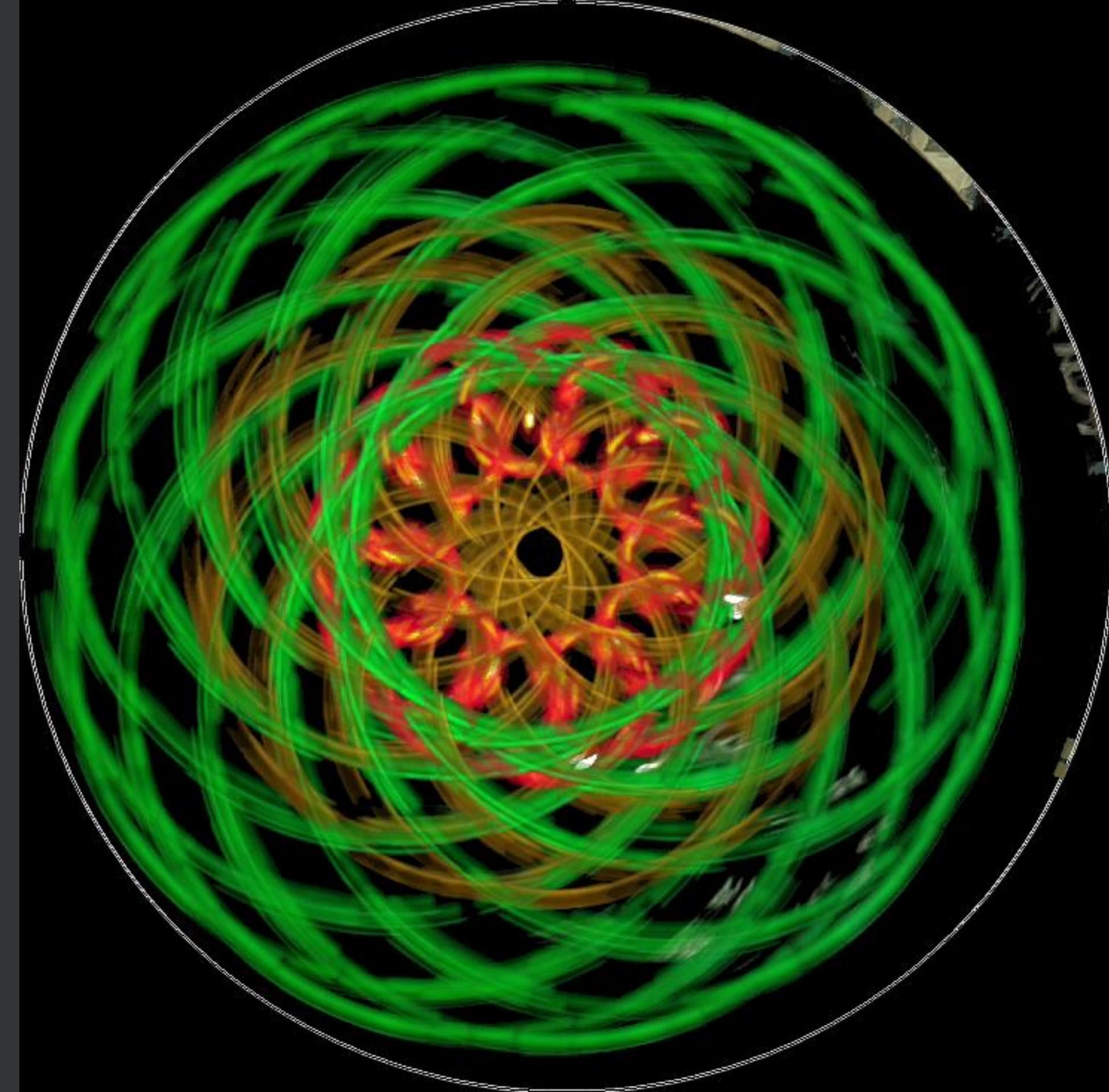
Christmas Tree

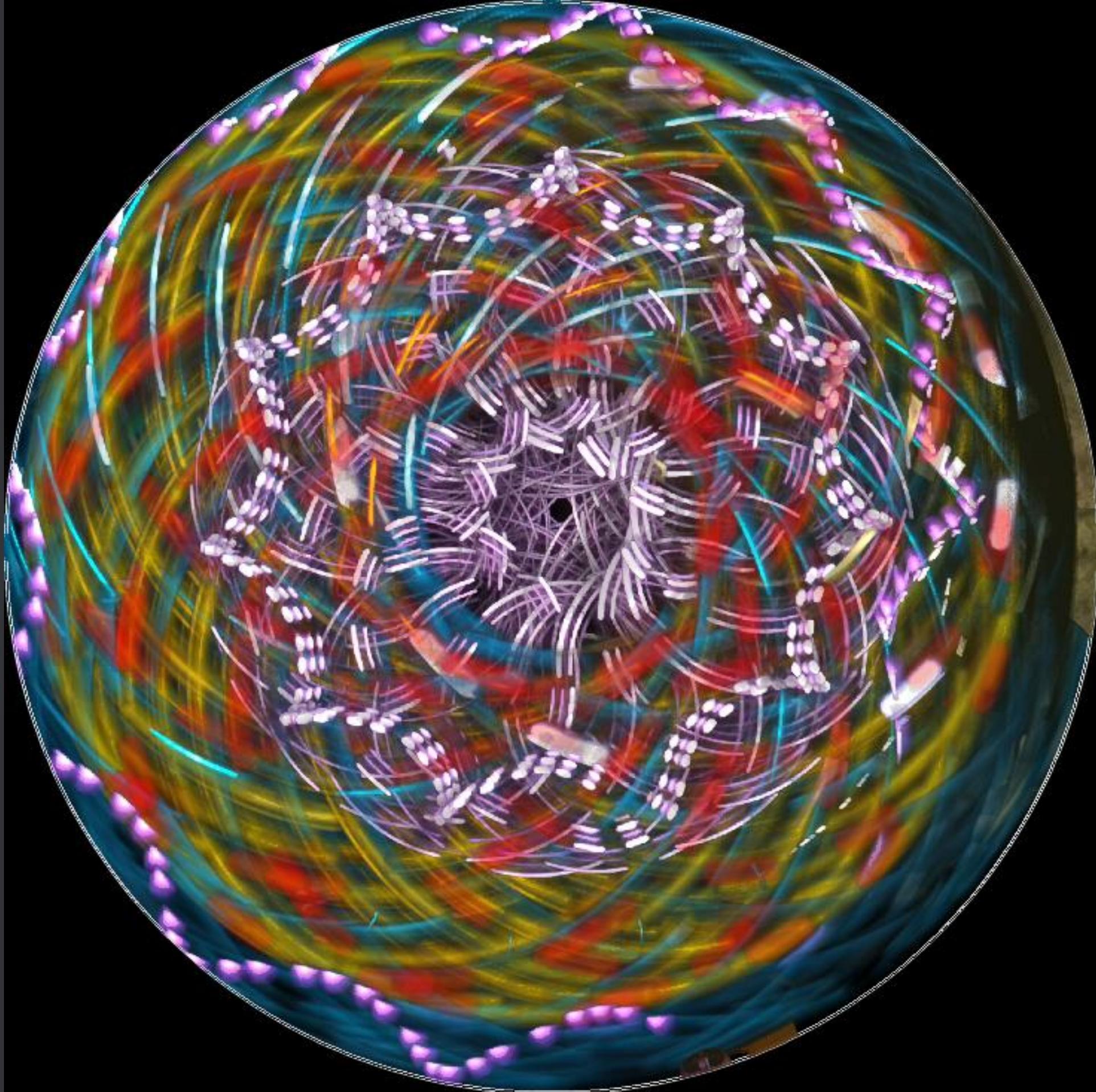
- Raspberry Pi
- Python
- NeoPixels
- Twitter
- ...
- 1-day hack
- Github collaboration



Technology Wishing Well









Technology Wishing Well

Raspberry Pi

NeoPixels

Github

Picamera

Pygame

ESP8266/
Arduino

Servos

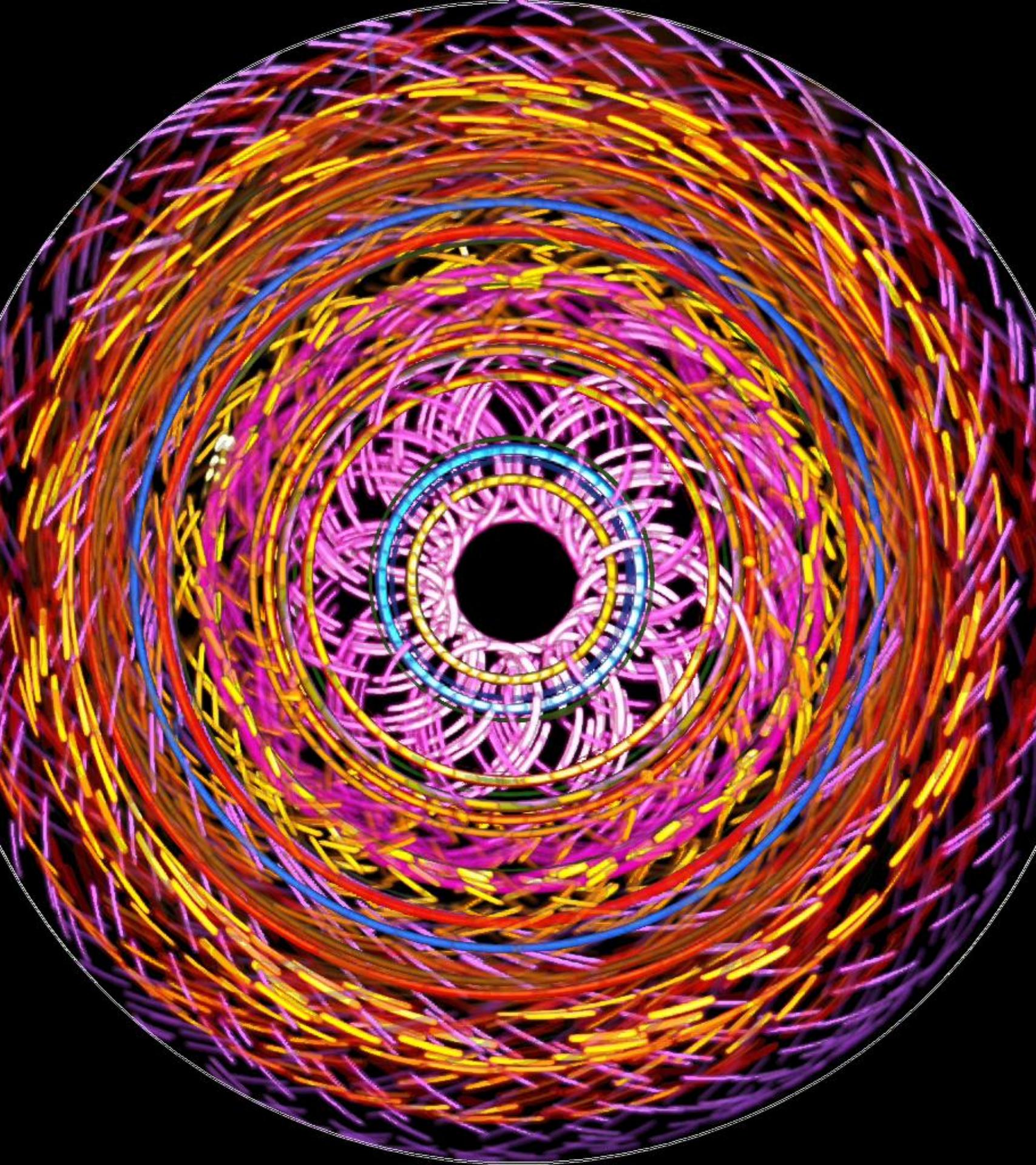
Numpy

MQTT

PyQT4 GUI

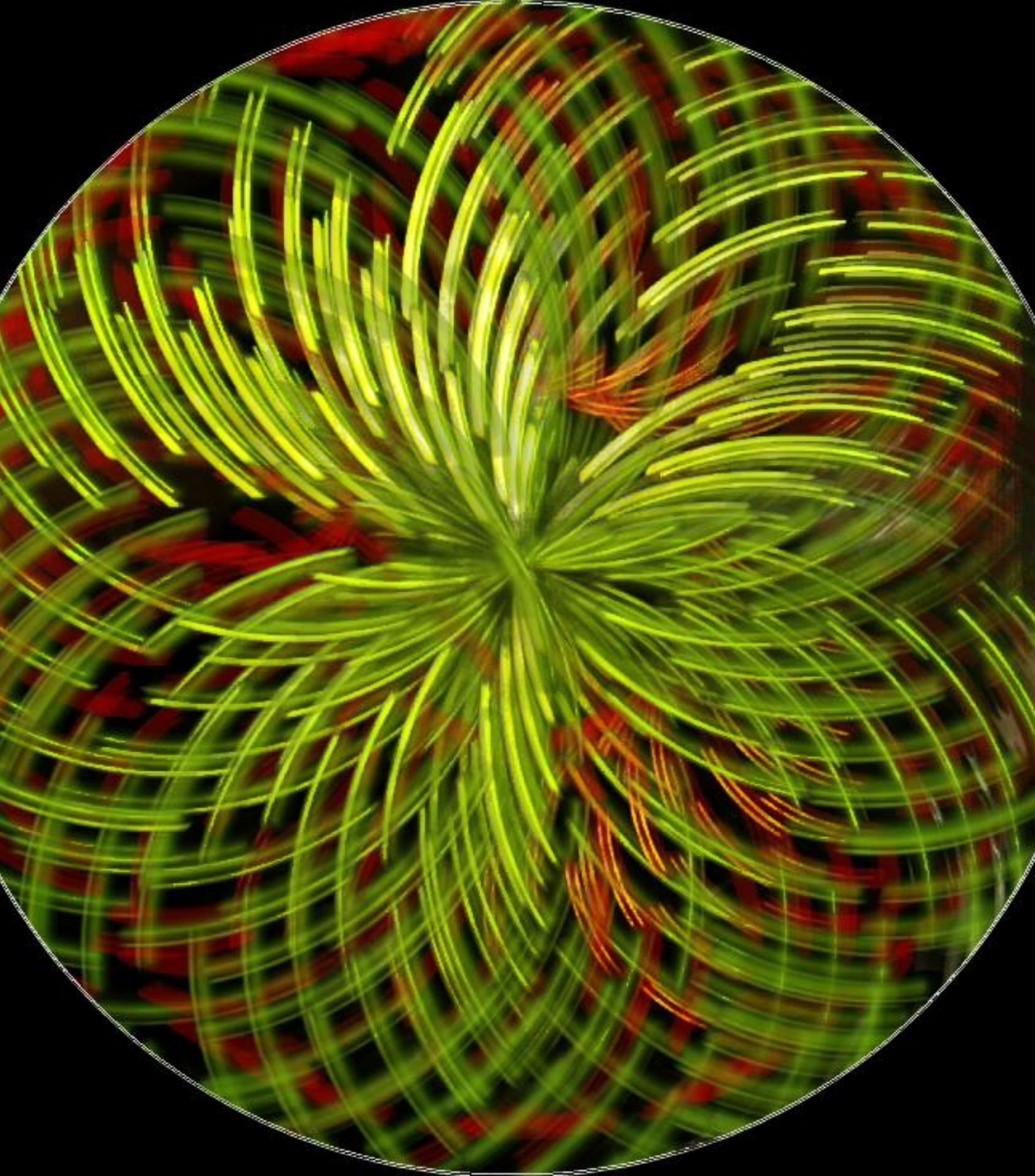
PIL

GPIOZero



Technology Wishing Well

- Small pieces, loosely joined
- Reusable code
- Multiplatform
- Message passing
- Design for visitor experience



Robot Orchestra v2

- ESP8266/Arduino
- MQTT
- Servos
- Raspberry Pi
- Python

Robot Orchestra v2

- Technology Wishing Well...
 - ...upside-down
 - Without the camera
 - With drums

Naffulus Pi

Arduino

micro:bit

Raspberry Pi

GPIOzero

picamera

Python

Motion

Minecraft



Heart of Maker Faire



Raspberry Pi

ESP8266

Python

Picamera

NeoPixels

GPIOzero

Thermal printer

MQTT

QR codes

MySQL

more NeoPixels

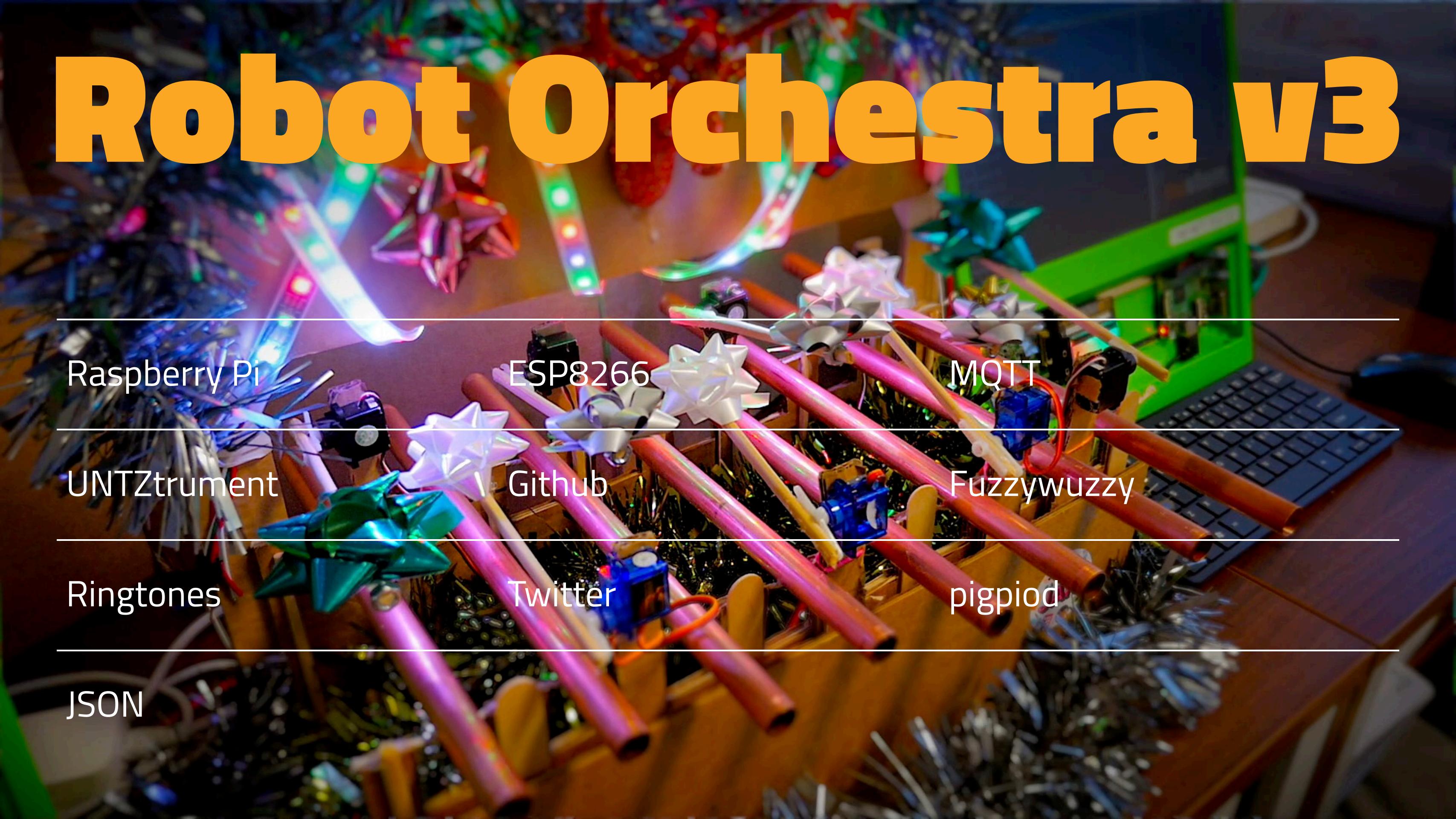
Processing

EVEN MORE
NEOPIXELS

*All your NeoPixel are
belong to us*



Robot Orchestra v3



Raspberry Pi

ESP8266

MQTT

UNTZtrument

Github

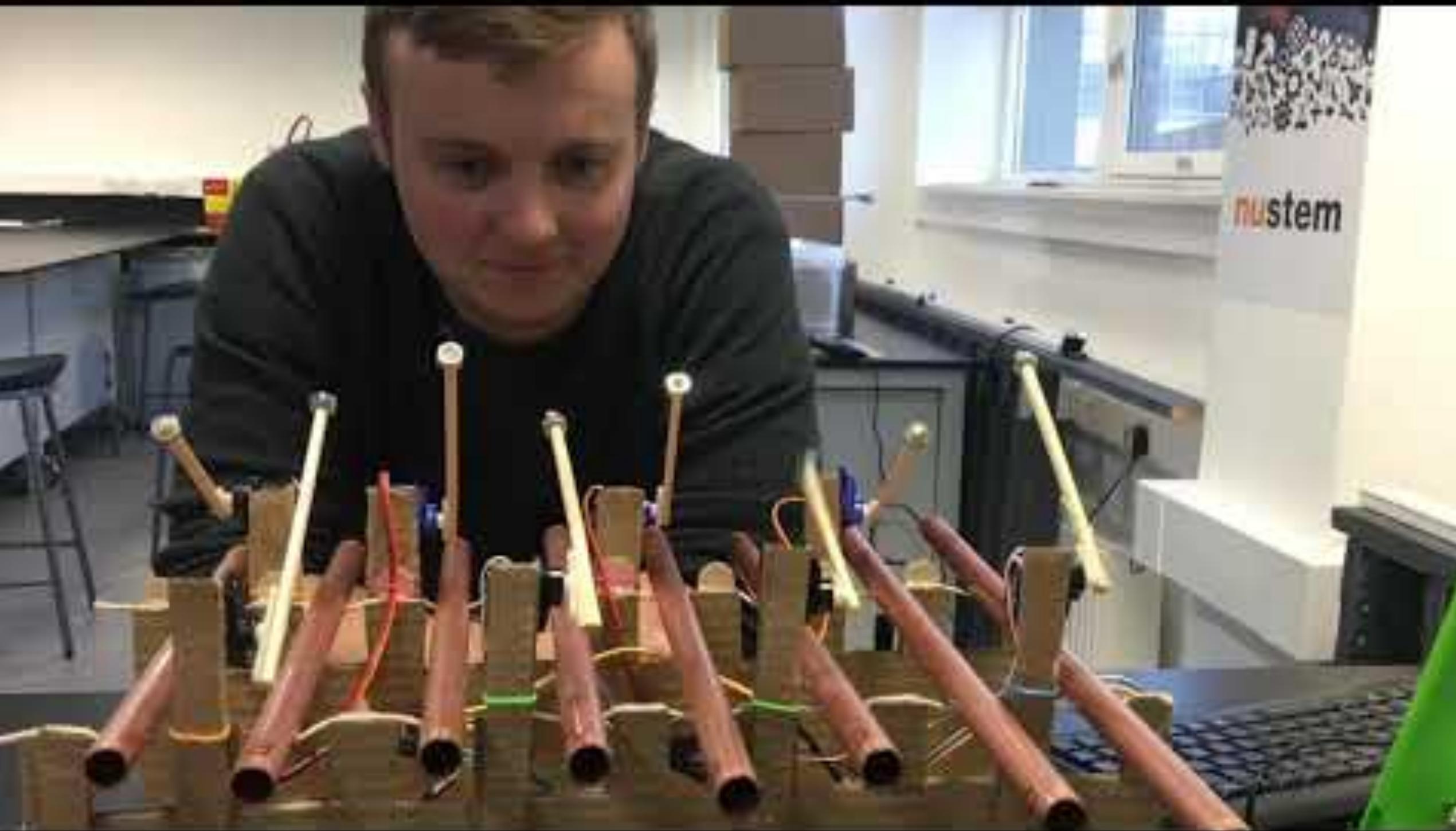
Fuzzywuzzy

Ringtones

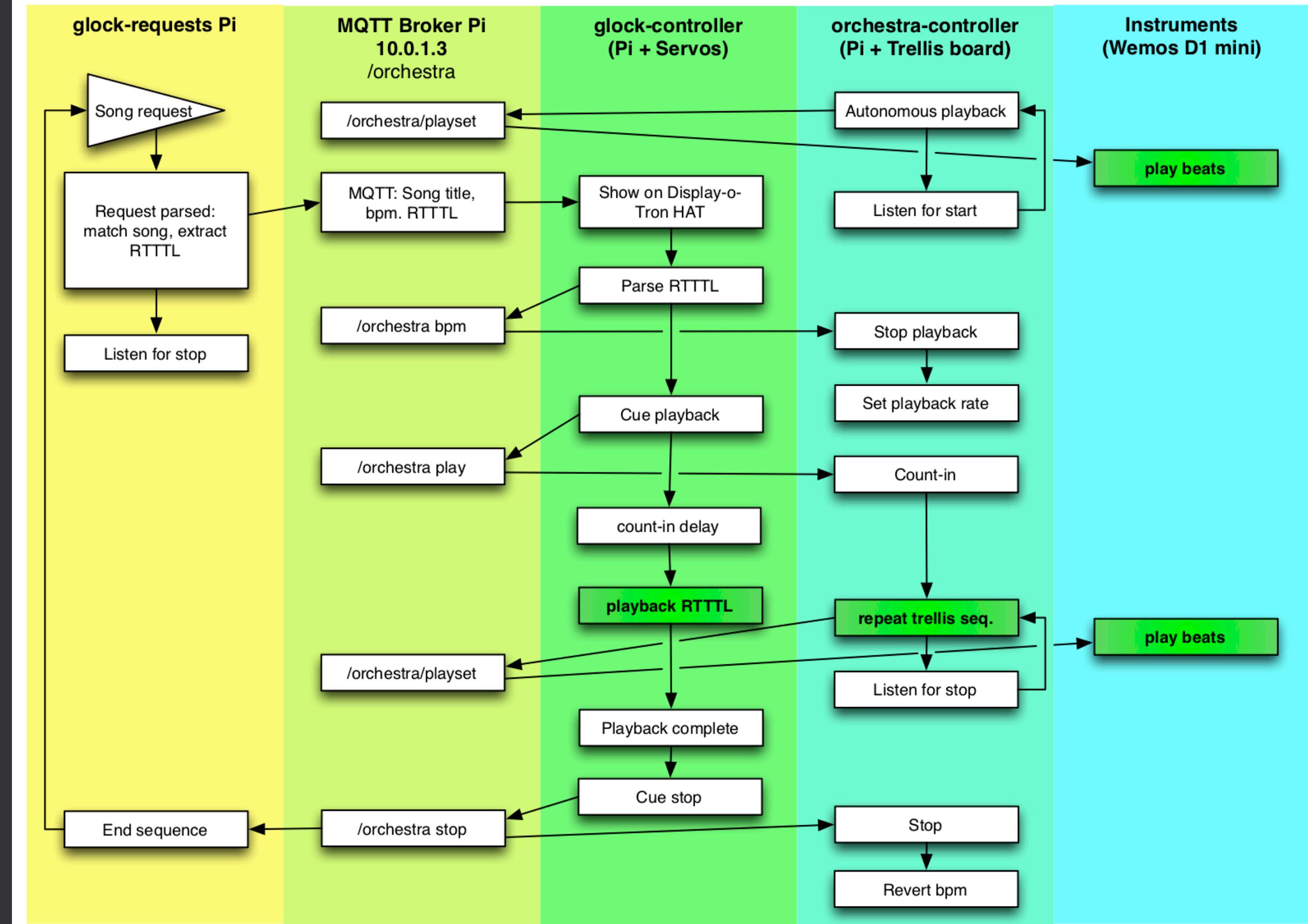
Twitter

pigpiod

JSON



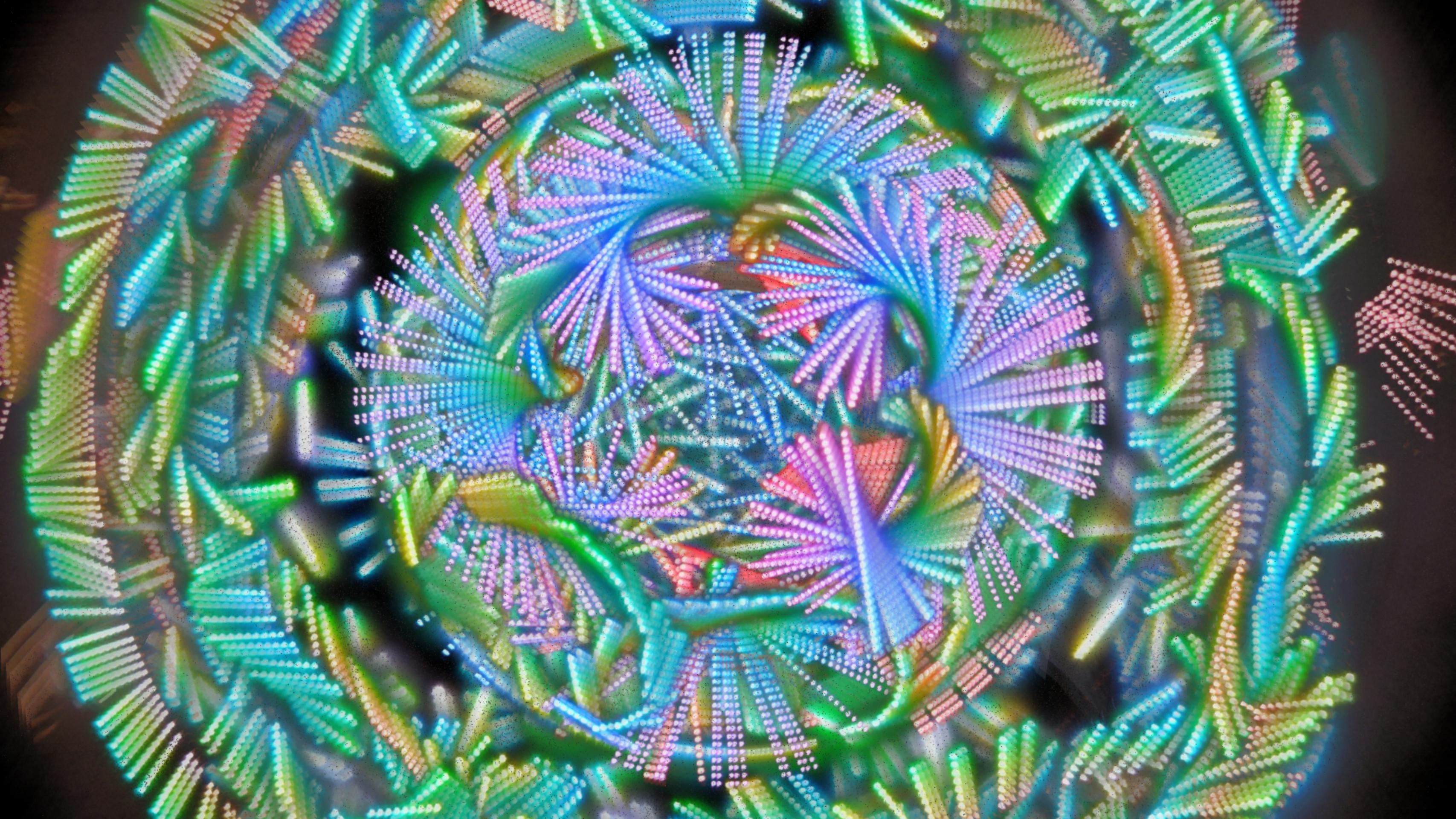


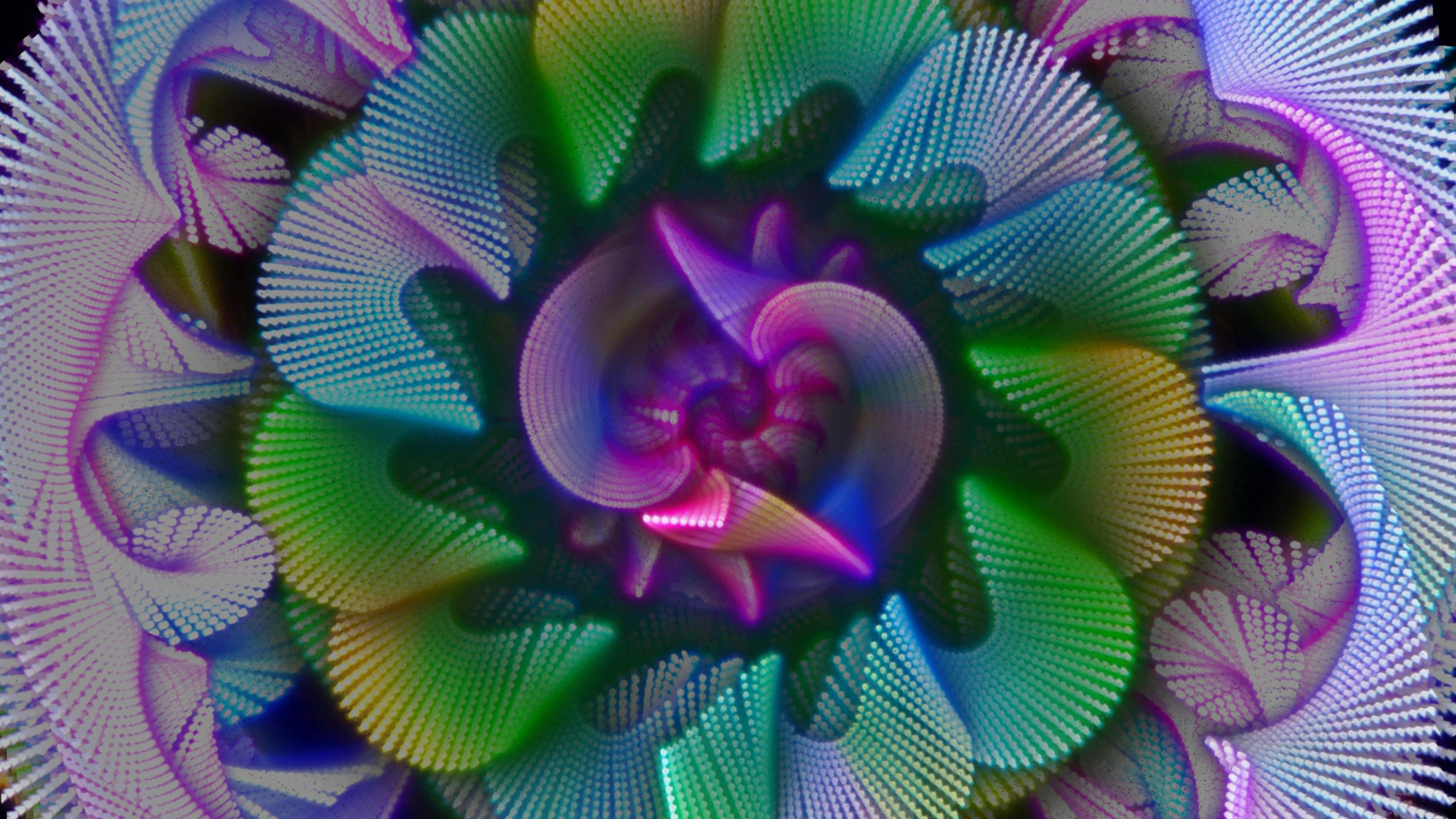


Pirograph

- Flask
(Python web application framework)
- Performance profiling
- Processing
- "ScutterZero"







THINGS
WHAT WE
LEARNED

How to approach coding

- Build real projects
- Work together
- Write for future projects
- Build on previous projects

How to approach coding (2)

- Choose common libraries
 - How recently updated?
 - awesome-python.com
- Read Skim documentation
 - Stick close to examples: choose challenges carefully
 - Borrow Steal from StackExchange

How to approach coding (3)

1. Make it work
2. Make it right
3. Make it fast

'Premature optimisation is the root of all evil.'

— Donald Knuth

teaching,
making,
tinkering

