

Week 5

Jumping over a 1000 foot wall

Delivered Through the medium of Mime and
Interpretive Dance



Big Examples

Daniel Rozin Mirrors

<https://www.youtube.com/watch?v=OYS-hp9VGAq>

Hyundai Hyper Matrix

<https://www.youtube.com/watch?v=vHkW9Kp2Clg>

Kinetic Sculpture

<https://youtu.be/5tCxMLjOCgc?t=85>

As we Are - Matthew Mohr

<https://hackaday.com/2017/09/07/1-5-million-dollars-buys-850000-leds-and-29-raspberry-pis/>

<https://www.bizjournals.com/columbus/news/2017/08/31/photos-columbus-newest-public-art-piece-is-a-3d.html>

<https://www.matthewmohr.com/>

How the Mirrors work - Maybe

A Camera, maybe a Kinect or a normal webcam. Start with the simplest and cheapest.

Splits the image into really low resolution (5x5,6x6 etc..) connected to a P.C

An algorithm to detect if each of those squares is foreground or background.

Create an Array to Store IF Foreground or Background (True or False)

Using the Serial connection send this to Arduino.

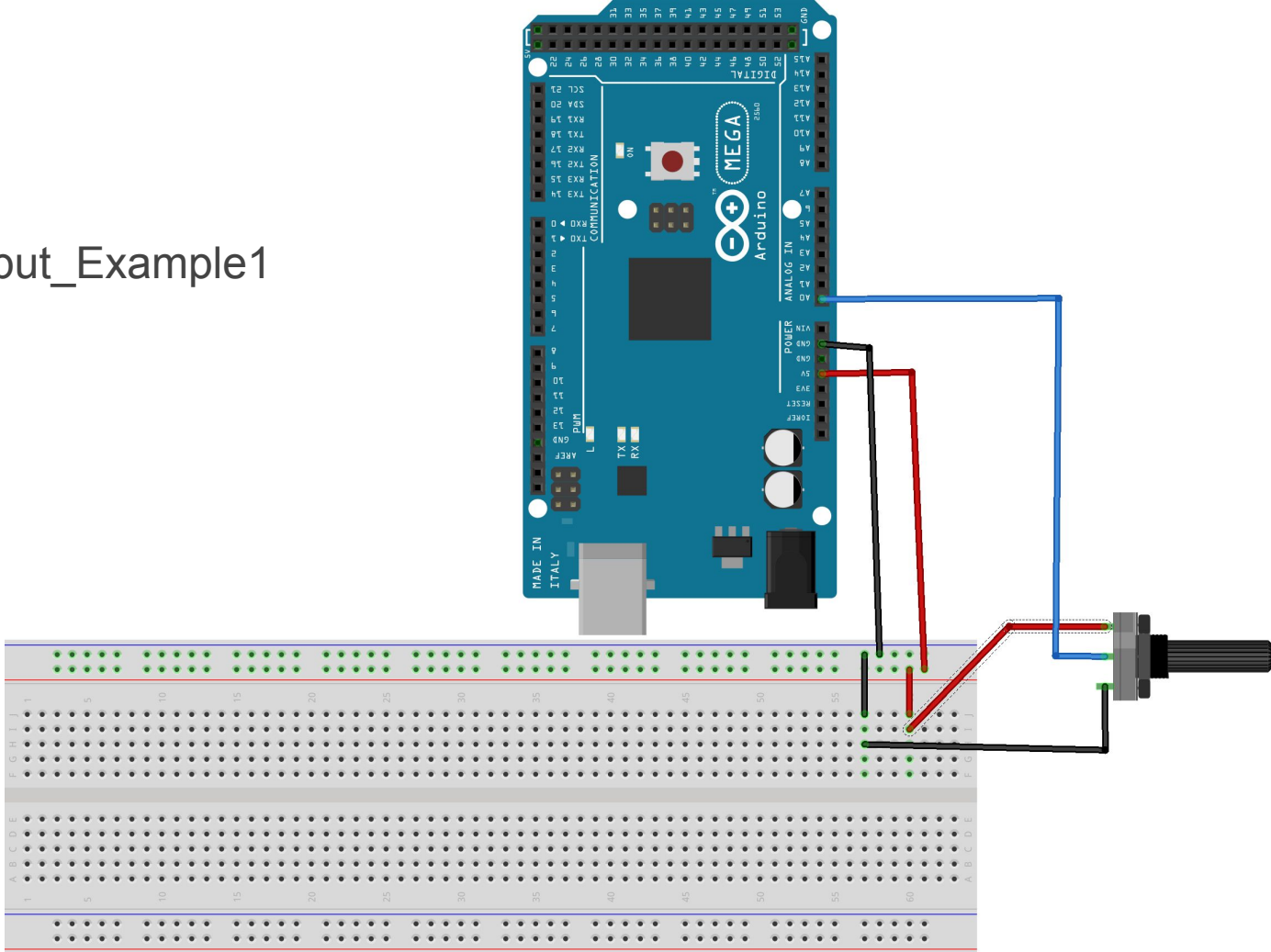
On the Arduino Read the Array through the Serial port. If True set output high, if False set Low.

Analogread()

When we need to read values from analog sources.

Use the A0 to A14 Pins.

Open AnalogInput_Example1



Mapping Value ranges

The range of values from the AnalogInput is 0 - 1023

The range of values used by NeoPixels is 0 - 255

This gives us a problem.

We need to map our input range to our output range

map()

<https://www.arduino.cc/reference/en/language/functions/math/map/>

```
inputLow = 0;
```

```
inputHigh = 1023;
```

```
mappedLow = 0;
```

```
mappedHigh = 255;
```

```
sensorMapped = map(sensorValue, inputLow, inputHigh, mappedLow, mappedHigh);
```

Walking Through the Examples

AnalogInput_Example2 - Adds in Map() to make the output suitable for NeoPixel

AnalogInput_Example3 - Adds in a second channel so it can be used with our Joystick.

AnalogInput_Example4_with_Neopixels - Adds in NeoPixel Code.

AnalogInput_Example4_with_Neopixels_and_random - Add in random colour.

And Now over to You!!

Imagine you have been offered **ONE MILLION**
Pounds if you can create an amazing digital art
work.

You just have to pitch a brilliant idea.

Doesn't have to be interactive, can just be cool/ interesting

If it is interactive. Keep to one type of sensor and one type of output.

You don't have to know how to do it.

It Doesn't have to be possible. - Yet.

Inspiration - <https://hackaday.io/list/2398-hacker-art>

3 Ideas

Think up 3 ideas.

One Sound.

One Movement

One Light

- 1) Create a drawing and notes on A4 on what this will be. Really sell this idea.
- 2) Pick one idea to take forward. - Pick one element of that and make it