



Cosplay props using Wemos and Neopixels

Time-travel costume accessory

- Cathy Ooi -



Mission

Make a “Time-traveller” costume for D&D.

Requirement

Visible in the dark

Small - can fit in my bag

Survive 4 hours



End product





Skillset

Electronics / Arduino / ESP8266

Programming - Arduino

PCB etching

Soldering & Crimping

Fabric Craft - grommets



Electronics

Wemos D1 Mini is ESP8266 breakout board.

Power: 3.3 V, with 5 V \rightarrow 3.3 V voltage regulator

Neopixel

Power: 5 V

Data : 1 pin



Power

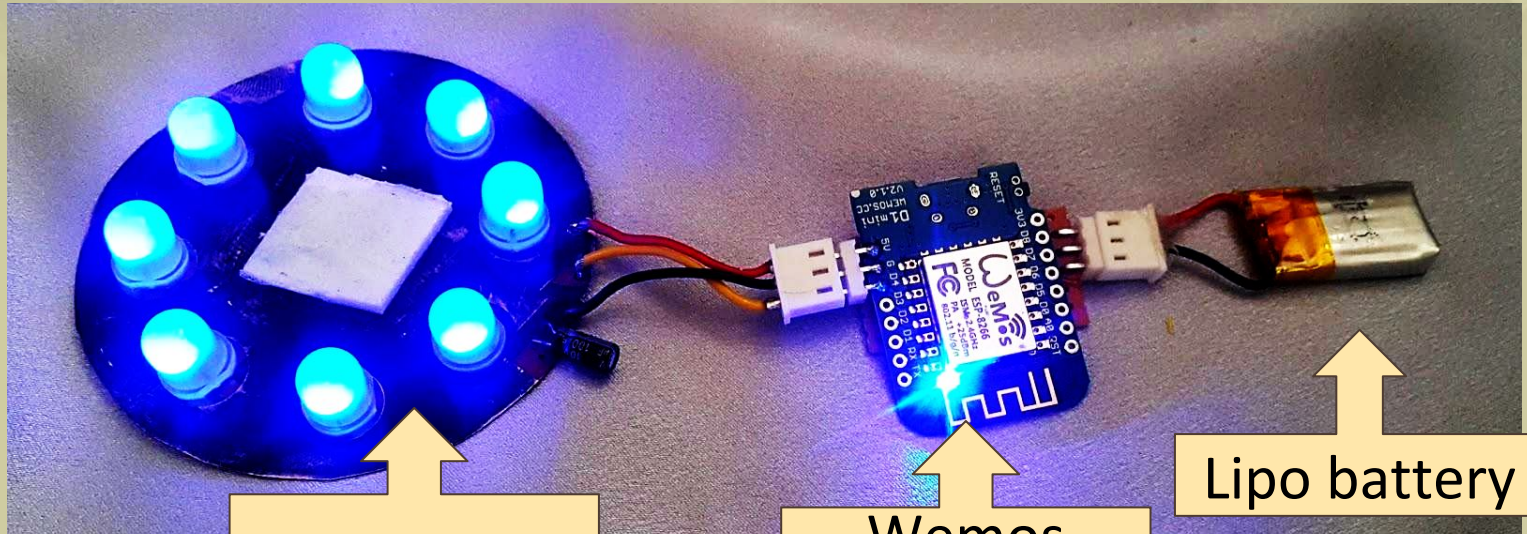
Lipo battery: 4.2 V - 3.7 V

Too low for Neopixels? - Can run at 3.3 V (dimmer)

Too high for Wemos? - Not if it is passed through 5V pin and stepped down.

Small form factor - Drone battery

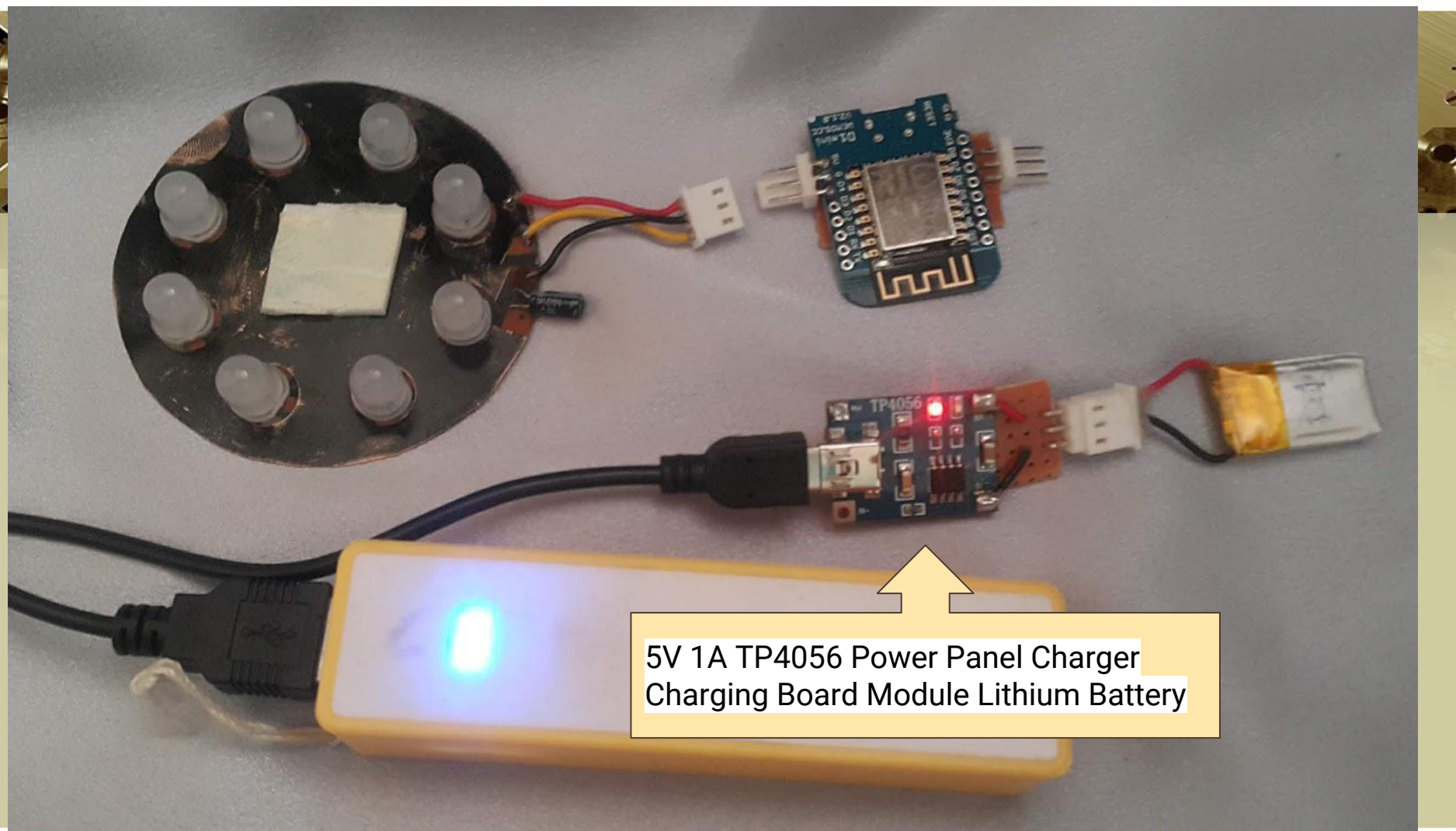
I got the POWER!



Blinkies

Wemos
D1 Mini

Lipo battery



5V 1A TP4056 Power Panel Charger
Charging Board Module Lithium Battery

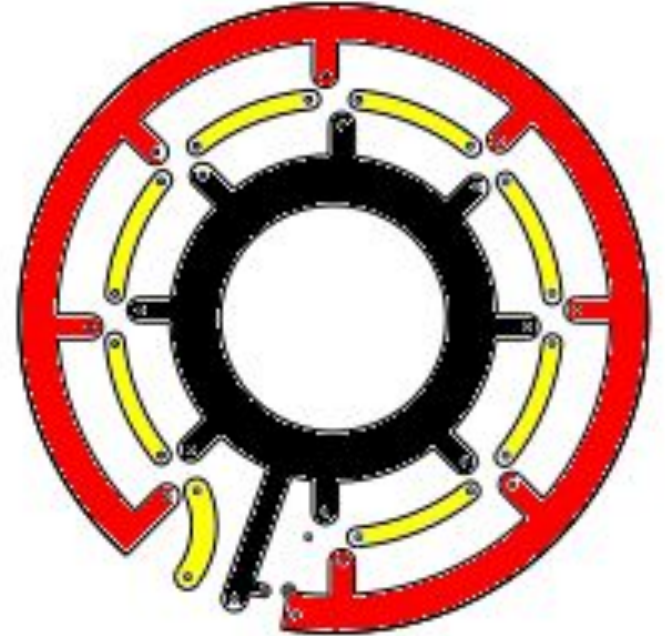
Blinkies (PCB and Neopixels)

Arrow = Capacitor!

R = Vcc

B = Gnd

Y = Din



PCB etching

Google DIY PCB etching.

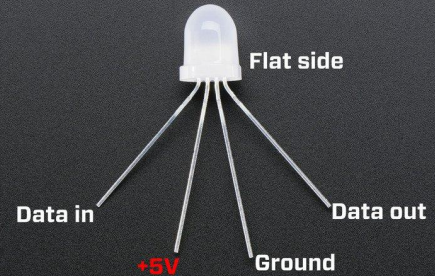
https://www.youtube.com/watch?v=3VJbZBK_7Tg



Bulbs and holes

<https://www.adafruit.com/product/1734>

NeoPixel Diffused 8mm Through-Hole LED





Code

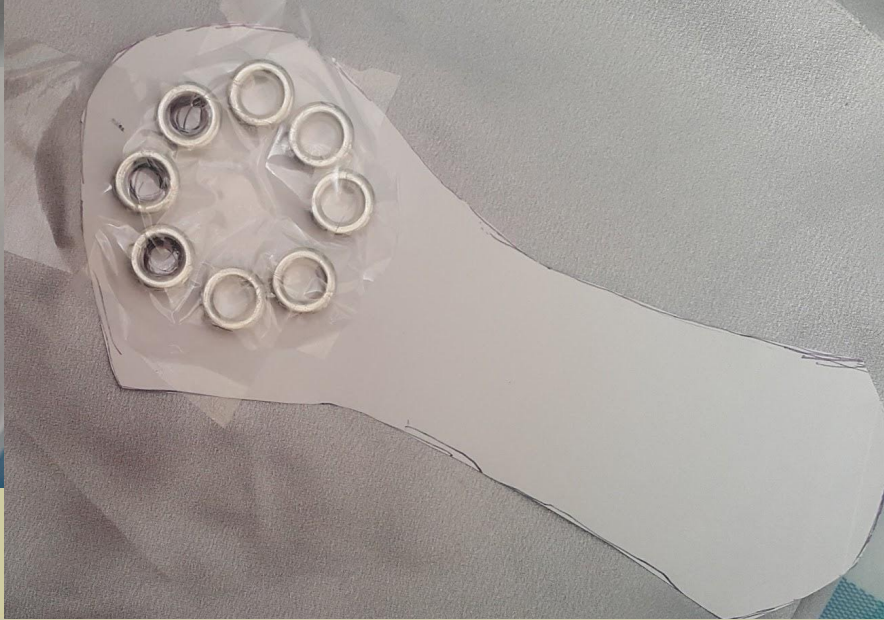
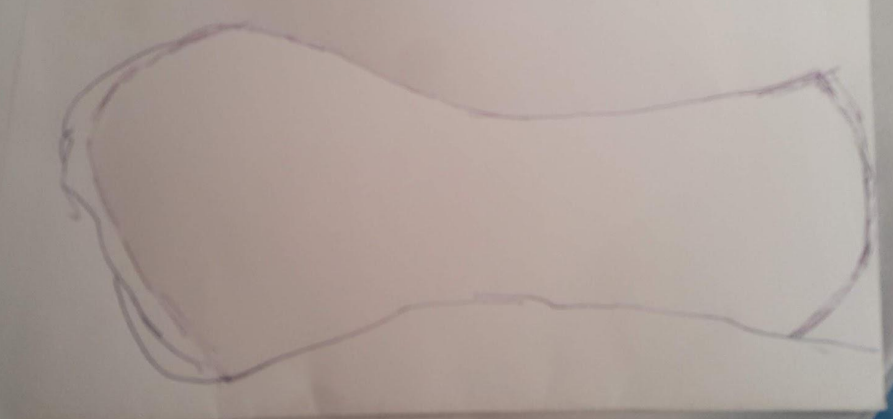
<https://github.com/cohlinn/WemosProjects/tree/master/TimeBracer>

- Reduce brightness to prevent blindness
- Wifi-AP to control/change pattern
- Using Mobile phone and browser

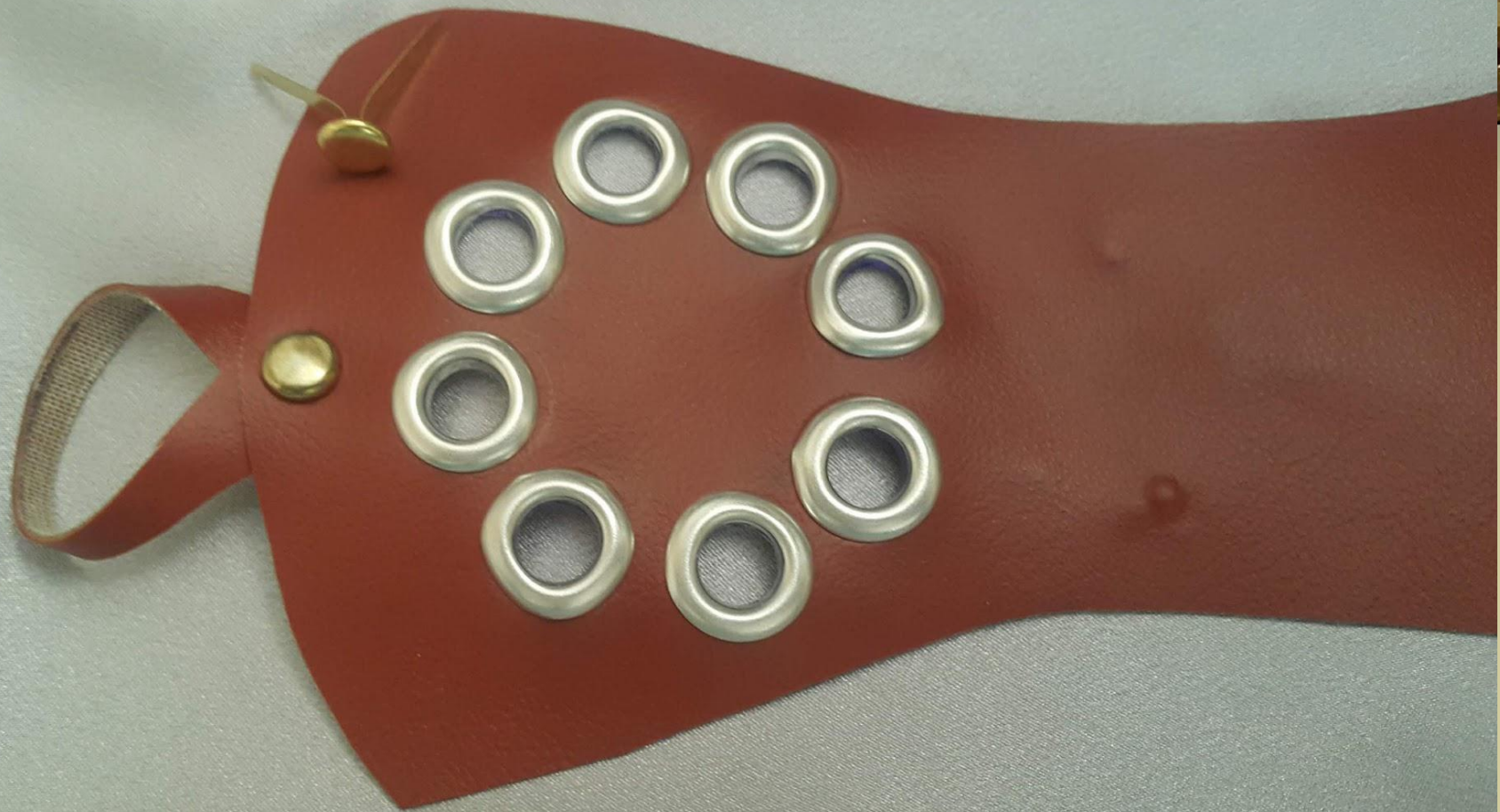
No sewing required - Bracer

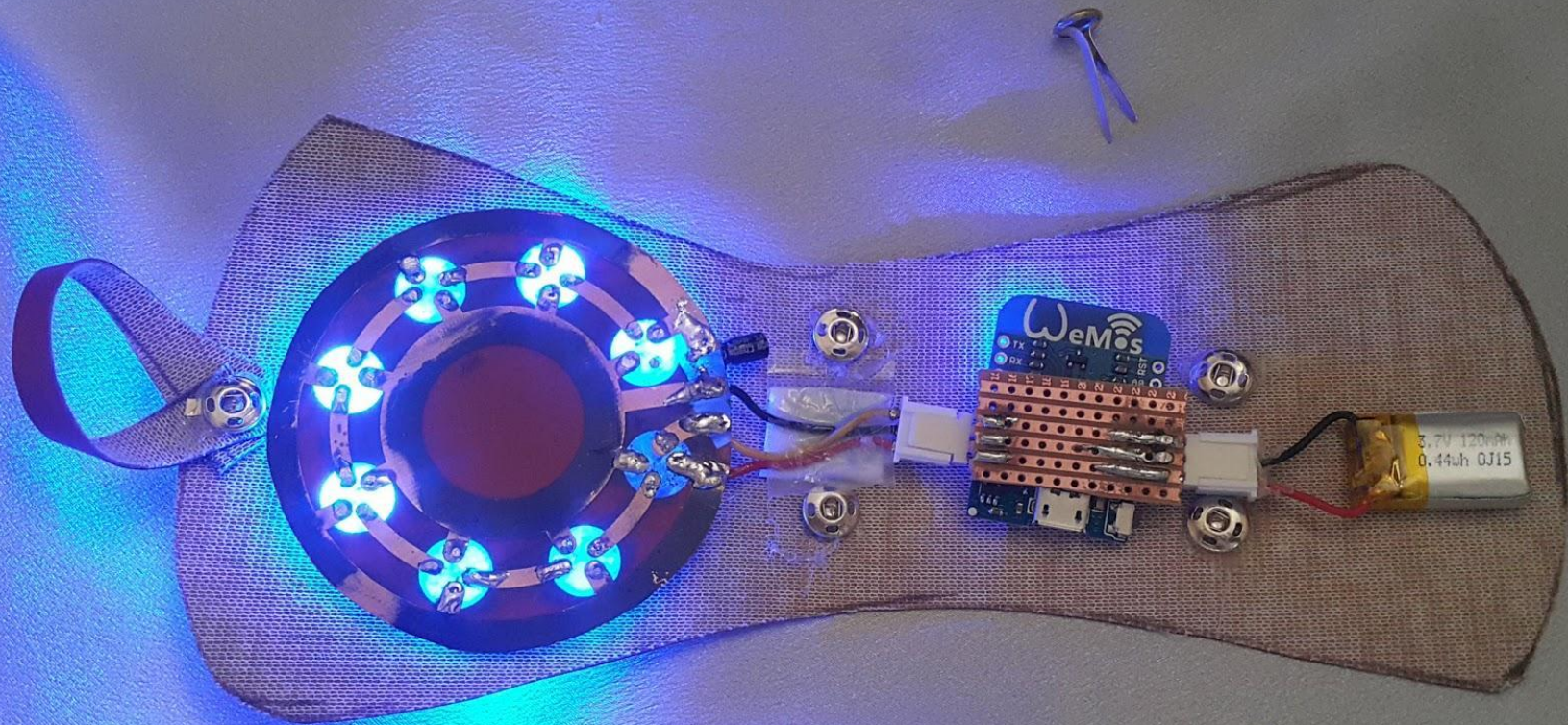
- 8 x 8mm grommets (Daiso)
- PVC leather
- Magnet bag closure (Daiso)
- Paper brad fastener



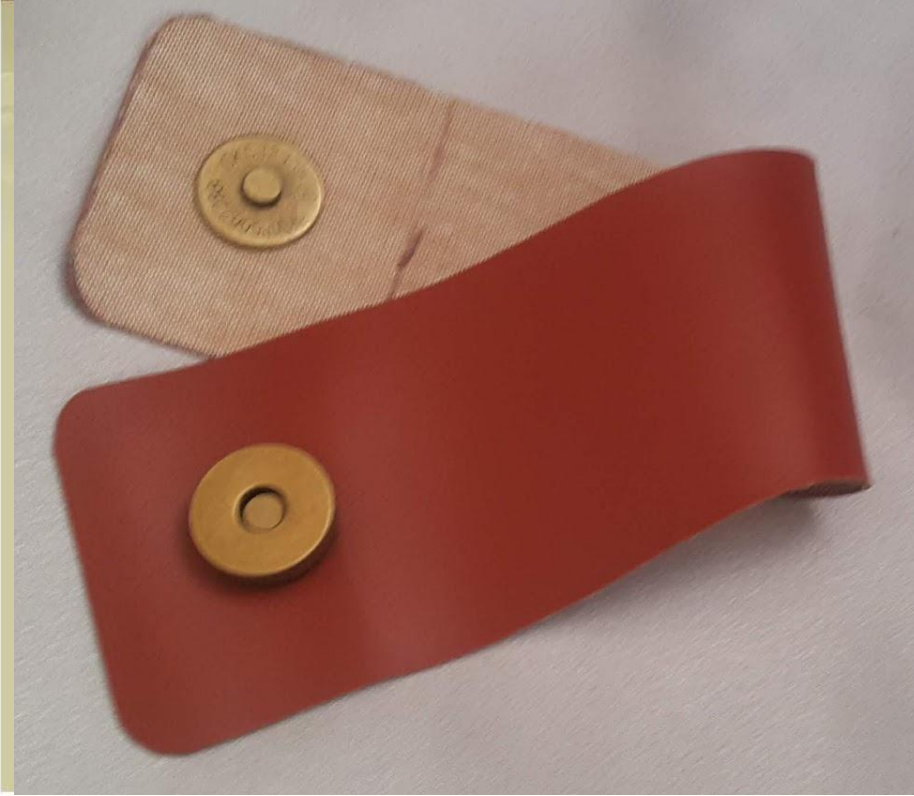
















References

<https://github.com/cohlinn/WemosProjects/tree/master/TimeBracer>

- Source code
- Slides