DIY Smart doorbell

By
.zip - Roos Groothuizen
TkkrLab - Dave Borghuis

.ZIP

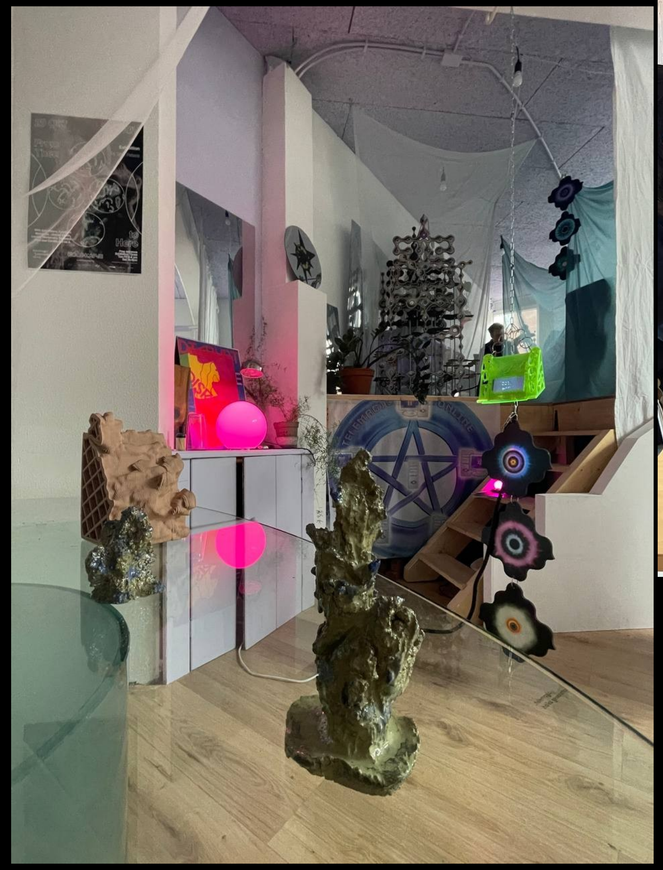
.zip is an artist space ran by 8 creatives who all work within the themes of:

digital cultures - everything considering our digital life ranging from memes to wellbeing to industry ethics

queer futures - the philosophy and activism around LGBTQIA+ topics

alternative art forms - fringe art forms that aren't really present within mainstream art spaces, such as role playing / game mechanics / hacking as a medium

.ZIP



Who is Roos ?

TkkrLab

- *hacker = creative with technologie*
- *One of the 16 hackerspaces in NL*
- *TkkrLab, Enschede*
- *Each hackerspace has own “taste”*


HACKERS


Metabo


HACKERS


Tkk/Lab
Hackerspace
Enschede

Who is Dave ?

- *Founder of Hackerspace TkkrLab / HackFest / Coder dojo Enschede*
- *Software developer*

- *Wifi complaint Gemeente Enschede*

- *Maker / Hacker / Privacy / Demoscene*

someoneisatyourfrontdoor.com

relationships, responsibility, cultural changes and horror

What is a smart doorbell

- *A doorbell connected to the internet that can notify the owner's smartphone when there's a visitor*
- *Has a camera, speaker and microphone*
- *Has camera-based motion detection*
- *Marketed as a home security device*
- *20% of Dutch households owns a smart doorbell*
- *Most popular brands are Ring (Amazon, US), Nest (Google, US), Eufy (Anker, CN)*

Usages

- *Monitoring the neighborhood (security)*
- *Monitoring your kids*
- *Communication device for parcel deliverers*
- *Communication device between neighbors or family members*
- *Filming pets / children / tiktoks*

What’s wrong

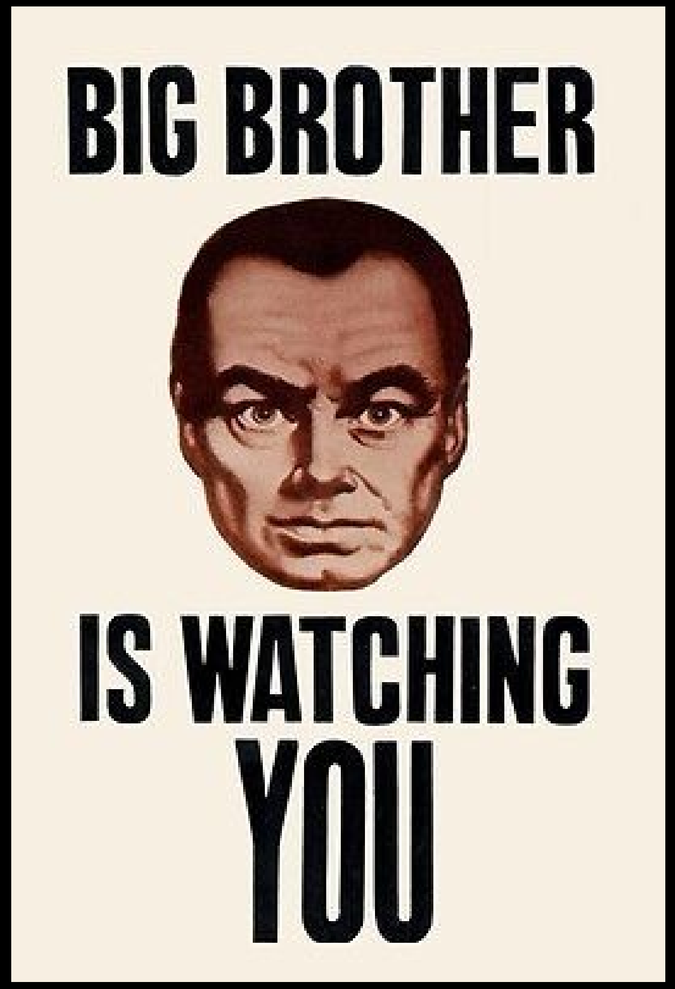
- *Not compliant with Dutch law, causing many neighbor disputes*
- *Software is not compliant with law, storing videos too long, not blurring faces*
- *Users aren’t compliant, sharing images on social media without consent*
- *Easy to hack*
- *Doesn’t prevent burglaries*
- *Ring & Nest store videos in US cloud, Eufy had encryption scandal last year*
- *Dutch police instead loves the smart cameras, giving them away for free in Gouda (Camera in Beeld register)*
- *Another digital dimension to focus on*
- *Feeds into voyeuristic desires*

AVG/GDPR and Camera

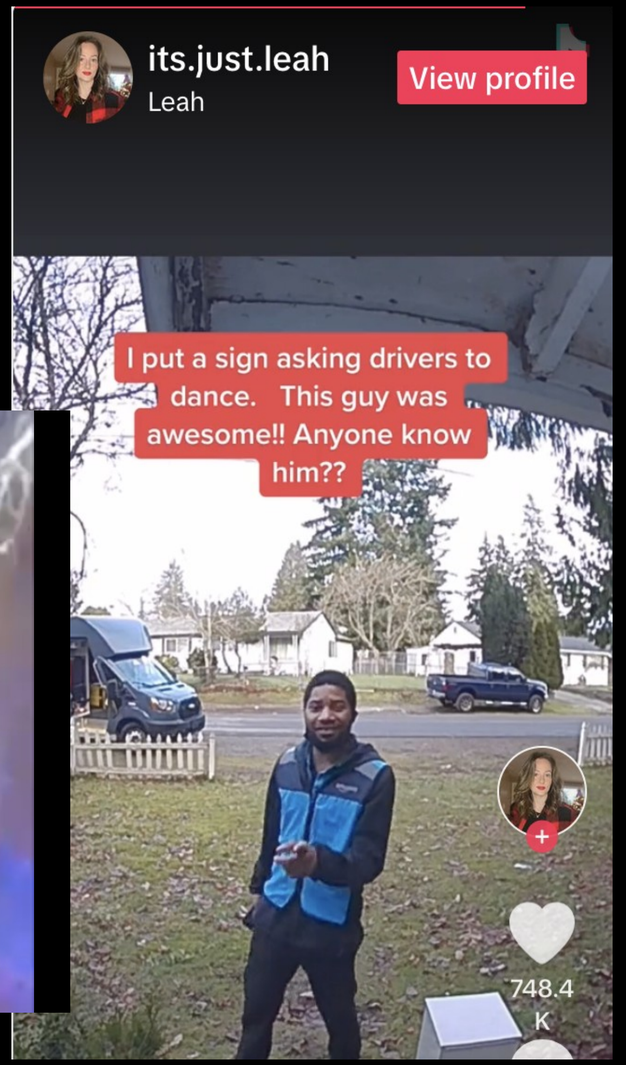
Guidelines Autoriteit persoonsgegevens

- *ONLY your own property. “alleen uw eigen bezittingen”.*
- *No garden neighbours, public road, pavement*
- *Don’t store images or short time*
- *Don’t share images*
- *Inform people*
- *Blur faces*
- *Respect privacy of persons*

What’s wrong


BIG BROTHER
IS WATCHING
YOU


ring


its.just.leah
Leah
View profile
I put a sign asking drivers to dance. This guy was awesome!! Anyone know him??
748.4
K

Horror

- *Five Nights at Freddy's*

- *Alternate Watch*

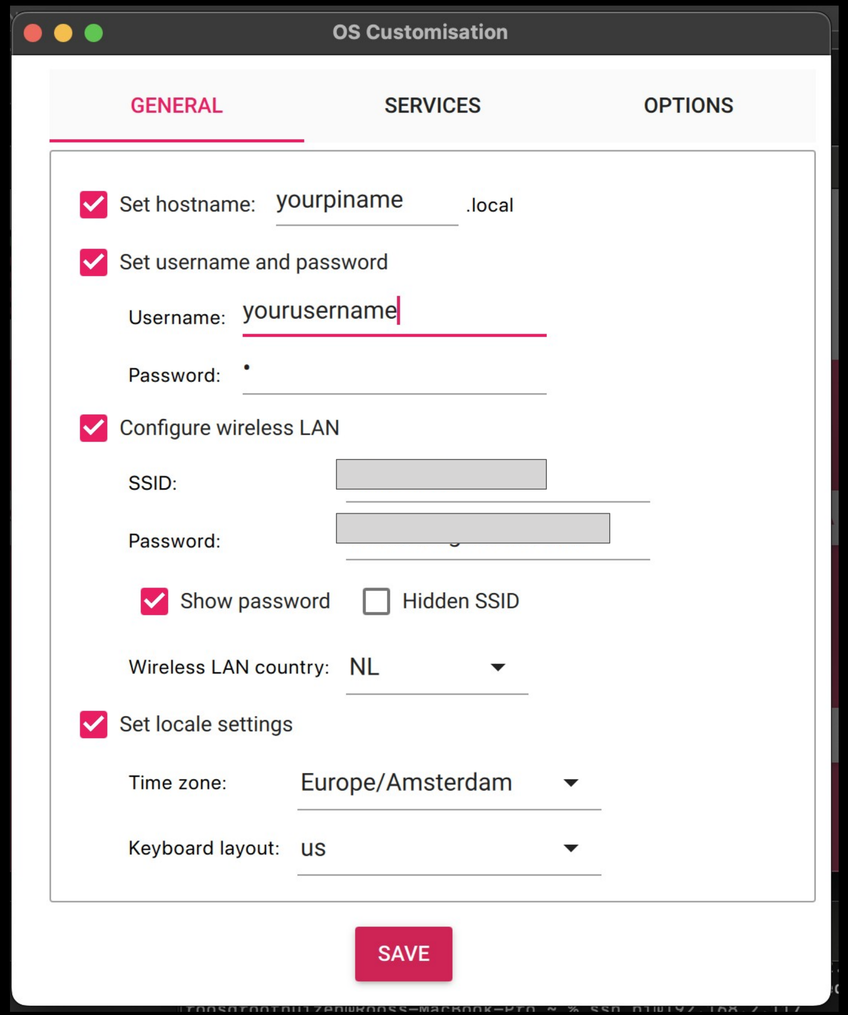

SMART DOORBELL JUMPSCARE KIT
De slimme deurbel is in Nederland razendpopulair. Ook is het voor velen een bron van ergernis. De slimme deurbellen worden meestal tegen de regels in opgehangen en buren voelen zich daardoor bespied. In 2023 werd de Autoriteit Persoonsgegevens (AP) overspoeld met honderden telefoontjes en eindigden er maar liefst 38 burenruzies over camera's in de rechtszaal.
Ben jij één van die buren die zich doodergert? Terroriseer de buurt terug met deze monsters uit de smart doorbell jumpscare kit .
Haal de plakkertjes los en plak de armpjes om een slimme deurbel heen.
tip
Voor een goed effect match je de bovenkant van het hoofd met de bovenkant van de camera lens
weetwatjefilmt.nl

Questions?

What’s on the menu today?

- *Rpi*
- *Camera*
- *Jitsi*
- *Telegram*

Raspberry Pi Imager



- https://www.raspberrypi.com/software/
- *Look on you box to see what number you have.*
- *For hostname, write pi[#], so if your number is 3, write pi3.*
- *For username, write user[#], i.e. user3*
- *For password, write zip[#], i.e. zip3*
- *Copy tkrrlab WiFi credentials (on the fridge)*
- *Set country to NL*
- *Select Enable SSH in the ‘Services’ tab*

Connect to Raspberry Pi

- *ssh username@piname.local*
- *VNC (client like TigerVNC or TightVNC (windows))*
- *Raspberry Pi Connect (via cloud,free account needed)*
  - *Your piname = pi[number]*
  - *Your username = user[number]*
  - *Your password = zip[number]*

More sources

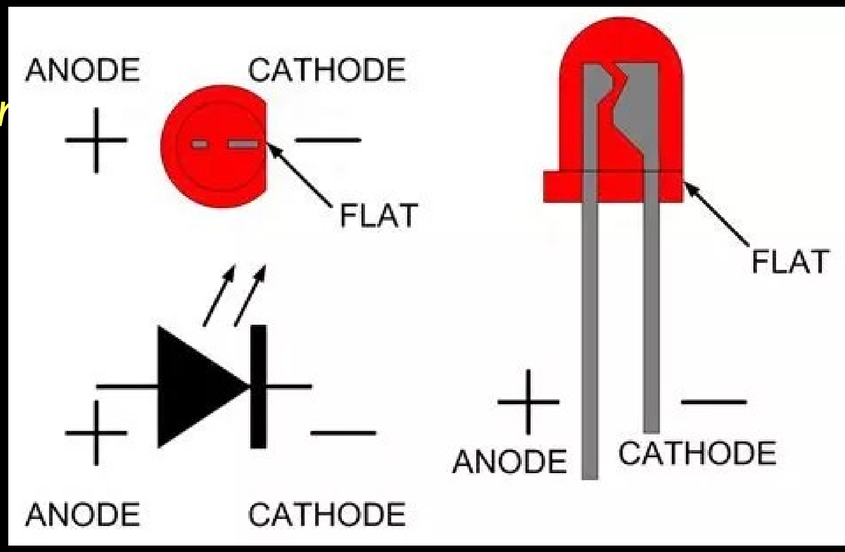
- *Intro Raspberry Pi (TkkrLab) https://www.youtube.com/watch?v=HS3m_azUov8*
- *Pi Connect https://www.raspberrypi.com/documentation/services/connect.html*

Turn off Raspberry Pi

- *open terminal*
- *sudo shutdown now*
- *Pi 5 – dubble press button near status light*
- *Disconnect power adapter*

Connecting GPIO

- *https://www.instructables.com/Smart-Doorbell-Using-Raspberry-Pi-5-Jitsi-Telegram/*
- *Camera LED*
  - *Led works one way*
  - *you need a resistor to prevent smoke optio*
- *Button*
- *Button LED*



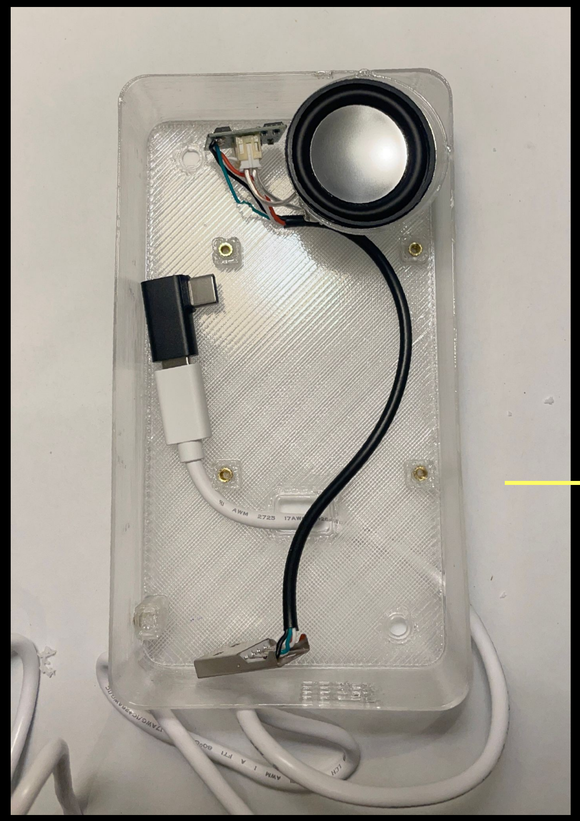
GPIO header

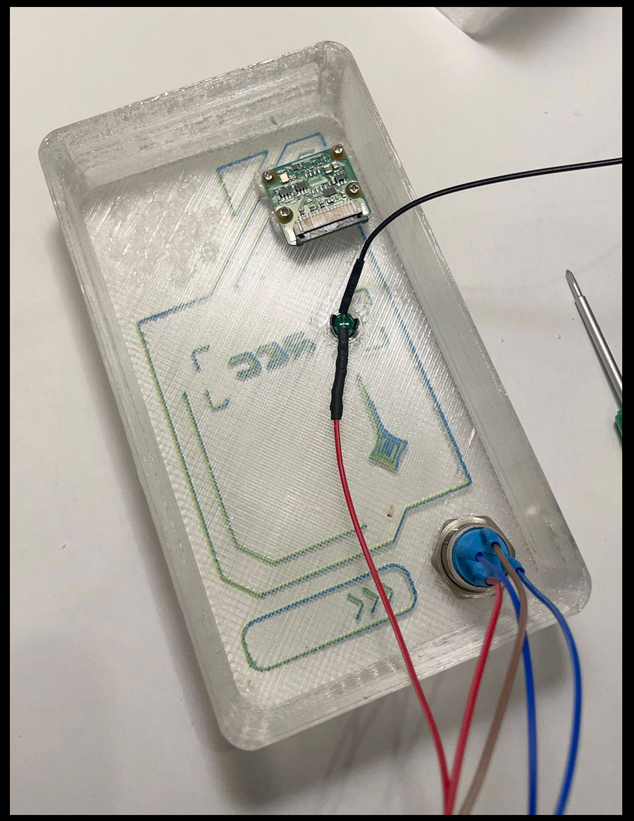
Alternate Function						Alternate Function
	3.3V PWR	1	2	5V PWR		
I2C1 SDA	GPIO 2	3	4	5V PWR		BUTTON (+
I2C1 SCL	GPIO 3	5	6	GND		BUTTON (-
	GPIO 4	7	8	UART0 TX		LED (150Oh
g/negative)	GND	9	10	UART0 RX		also known as GPIO 14
	GPIO 17	11	12	GPIO 18		
	GPIO 27	13	14	GND		
	GPIO 22	15	16	GPIO 23		
	3.3V PWR	17	18	GPIO 24		
SPI0 MOSI	GPIO 10	19	20	GND		
SPI0 MISO	GPIO 9	21	22	GPIO 25		
SPI0 SCLK	GPIO 11	23	24	GPIO 8		SPI0 CS0
	GND	25	26	GPIO 7		SPI0 CS1
	Reserved	27	28	Reserved		
	GPIO 5	29	30	GND		
	GPIO 6	31	32	GPIO 12		
	GPIO 13	33	34	GND		
SPI1 MISO	GPIO 19	35	36	GPIO 16		SPI1 CS0
N (NO pin)	GPIO 26	37	38	GPIO 20		SPI1 MOSI
N (NO pin)	GND	39	40	GPIO 21		SPI1 SCLK

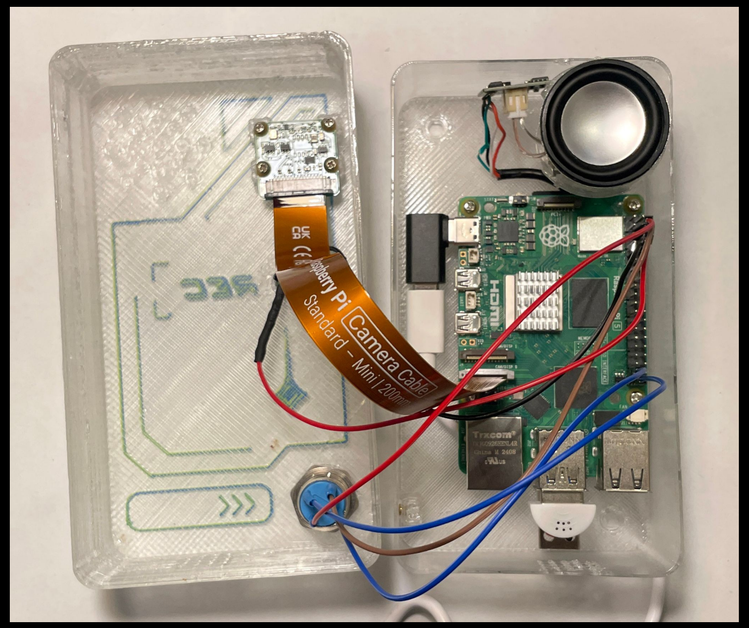
Connect camera

- *Connect usb mic to top port, usb speaker to bottom port*

Full set







Doorbell program

- *Made in Python*
- *Terminal: git clone https://github.com/zeno4ever/zip_pi_doorbell*
- *Terminal: cd zip_pi_doorbell*
- *Terminal: less README.md ← all the instructions (press q to exit)*

Check wiring

- *Turn Pi on*
- *Check camera in terminal: libcamera-hello*
- *Check speaker and mic with Jitsi call (meet.hack42.nl)*

Check wiring

- *Check button and camera led*
- *Terminal: nano LED.py*
- *Paste:*

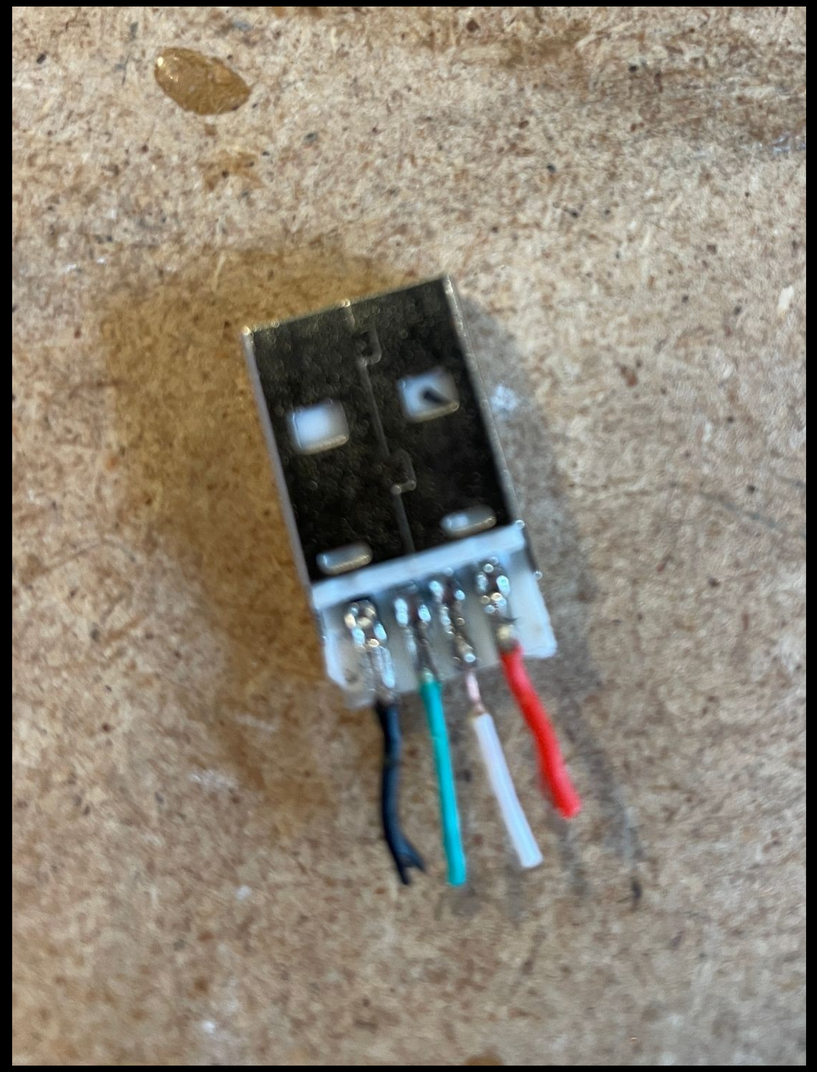
```
from gpiozero import LED, Button
from time import sleep
from signal import pause

led = LED(14)
button = Button(26)

button.wait_for_press()
led.on()
sleep(3)
led.off()
pause()
```

- *ctrl+x to write out, type y for yes, then enter*
- *Terminal: sudo python LED.py*
- *Press button, the LED should light up once.*
- *Ctrl+C in terminal to stop code*

Speaker USB



Extension

- *Add screen to bell*
- *Add AI/object detection*