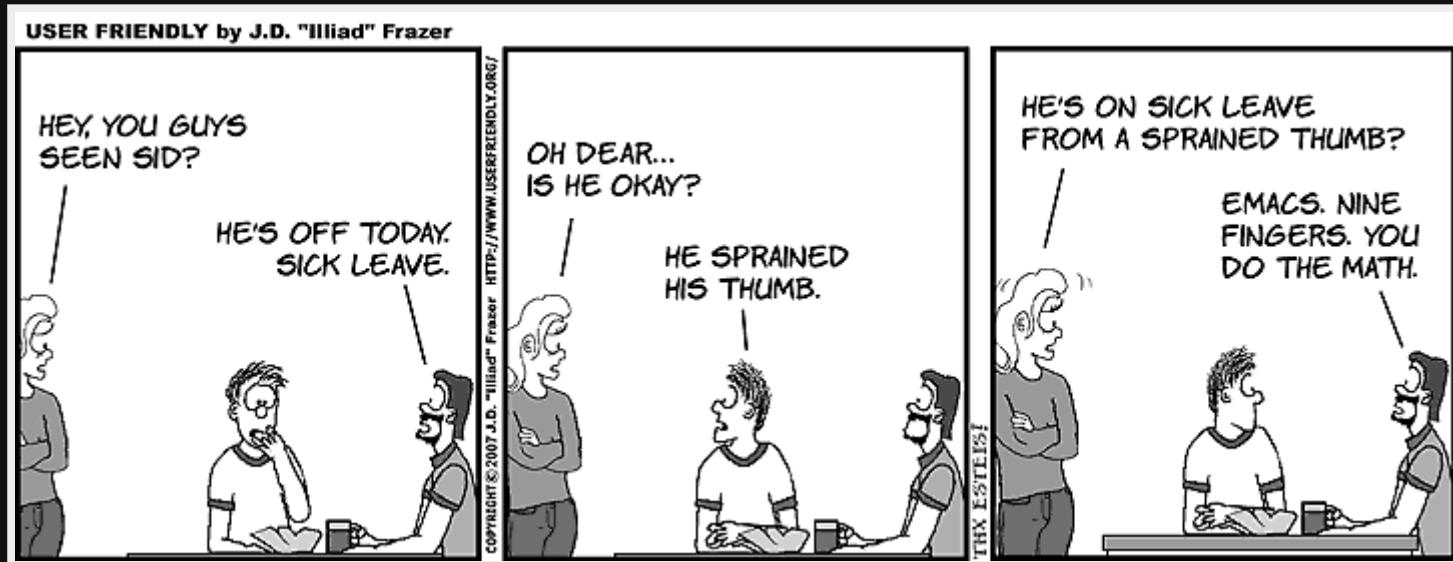


USB Foot Pedal



Why?

- I started to get the "Emacs Pinky" / RSI
- Use the pedal for CTRL instead of my finger
- Building one is much cheaper than buying one

Other uses

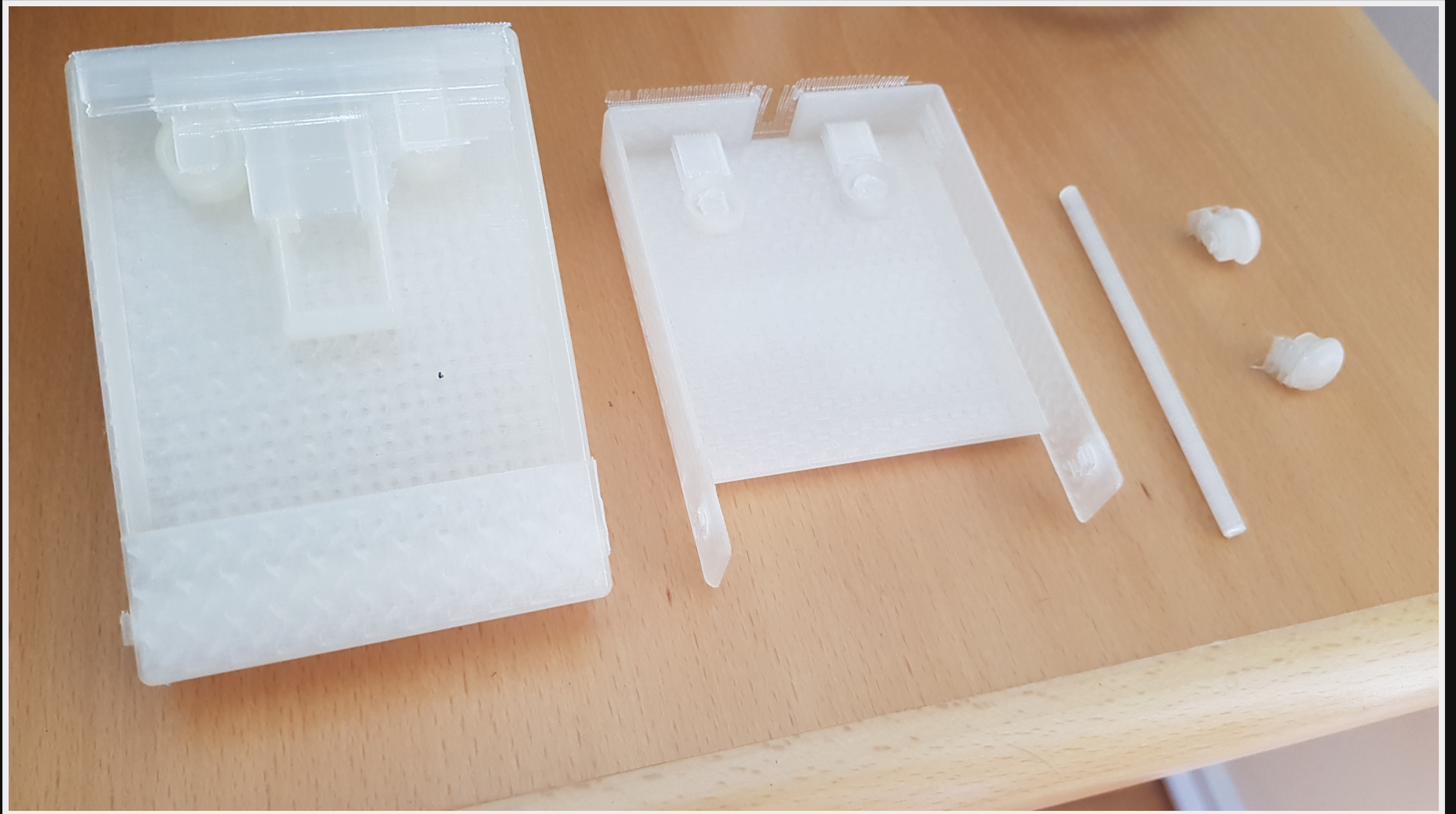
- Mouse clicking (RSI)
- Gaming
- Medical to keep hands free
- Music production (pause/record)
- Data entry (enter/tab keys)

Parts

Switch	Cherry MX Blue Switch	\$2
Teensy	Teensy LC	\$27
Springs	2 x 9.5mm diameter	\$1

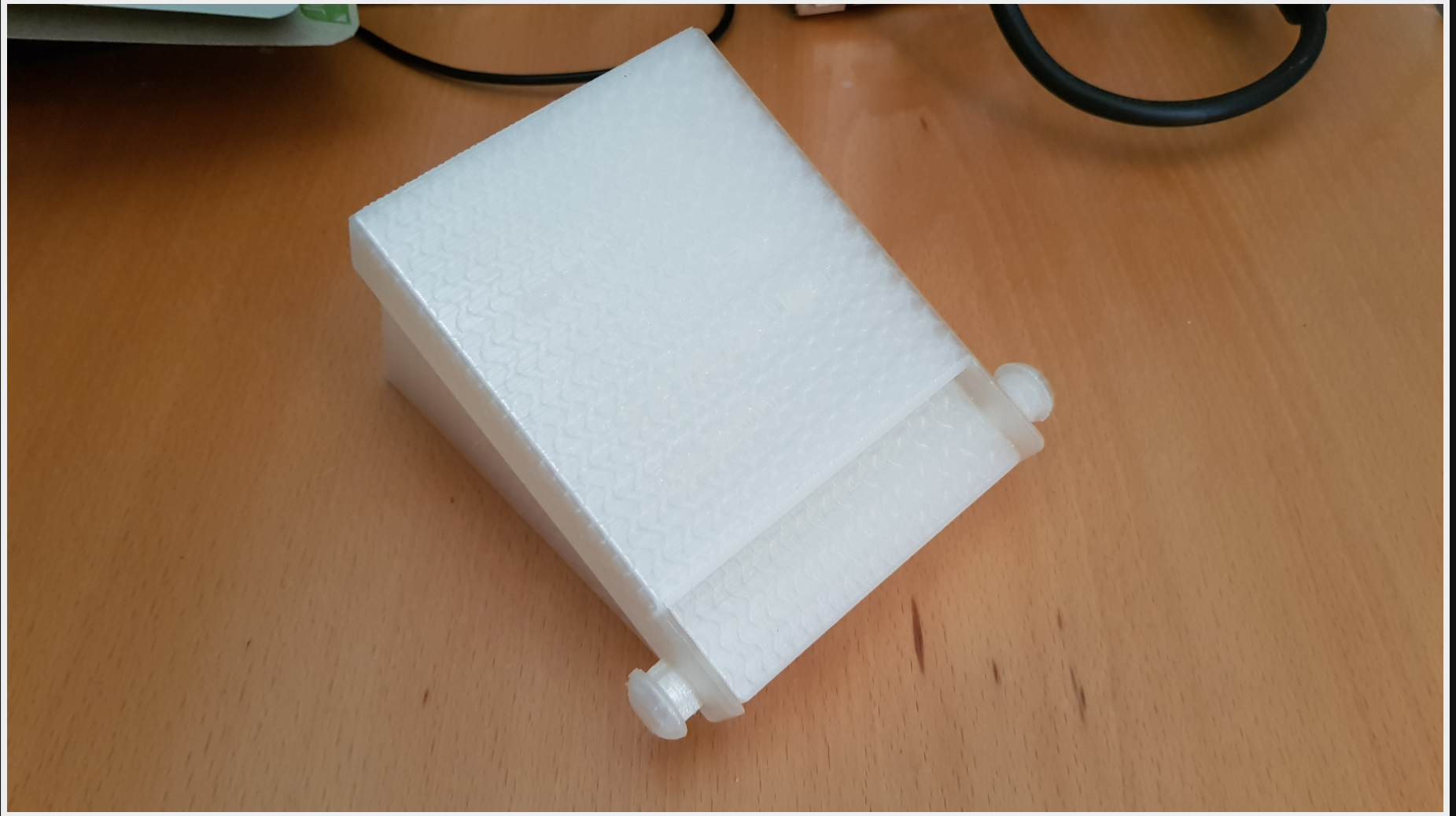
Compared with \$129USD for a commercial product

Pedal (3d printed)

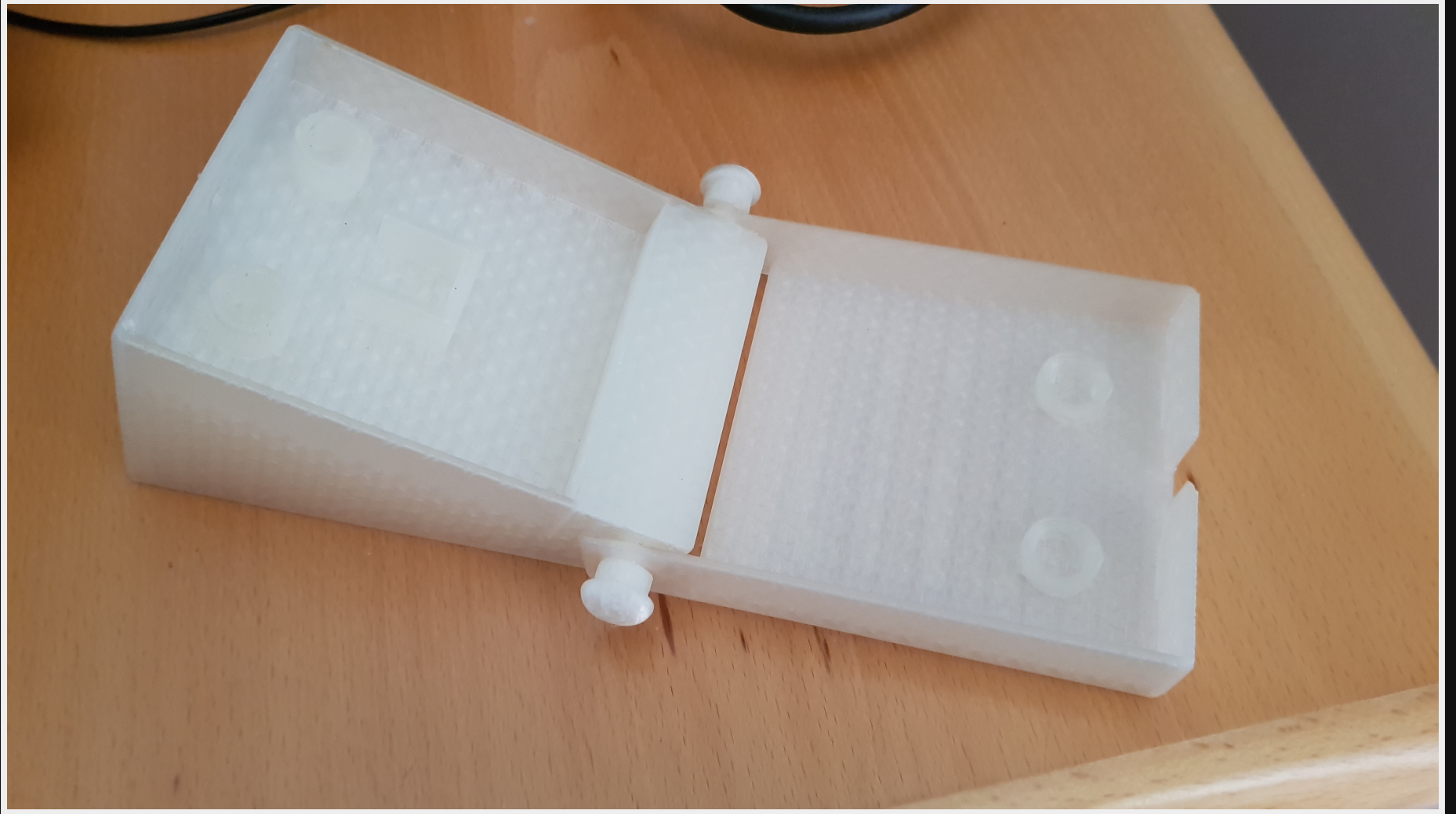


Print <https://www.thingiverse.com/thing:3506058>

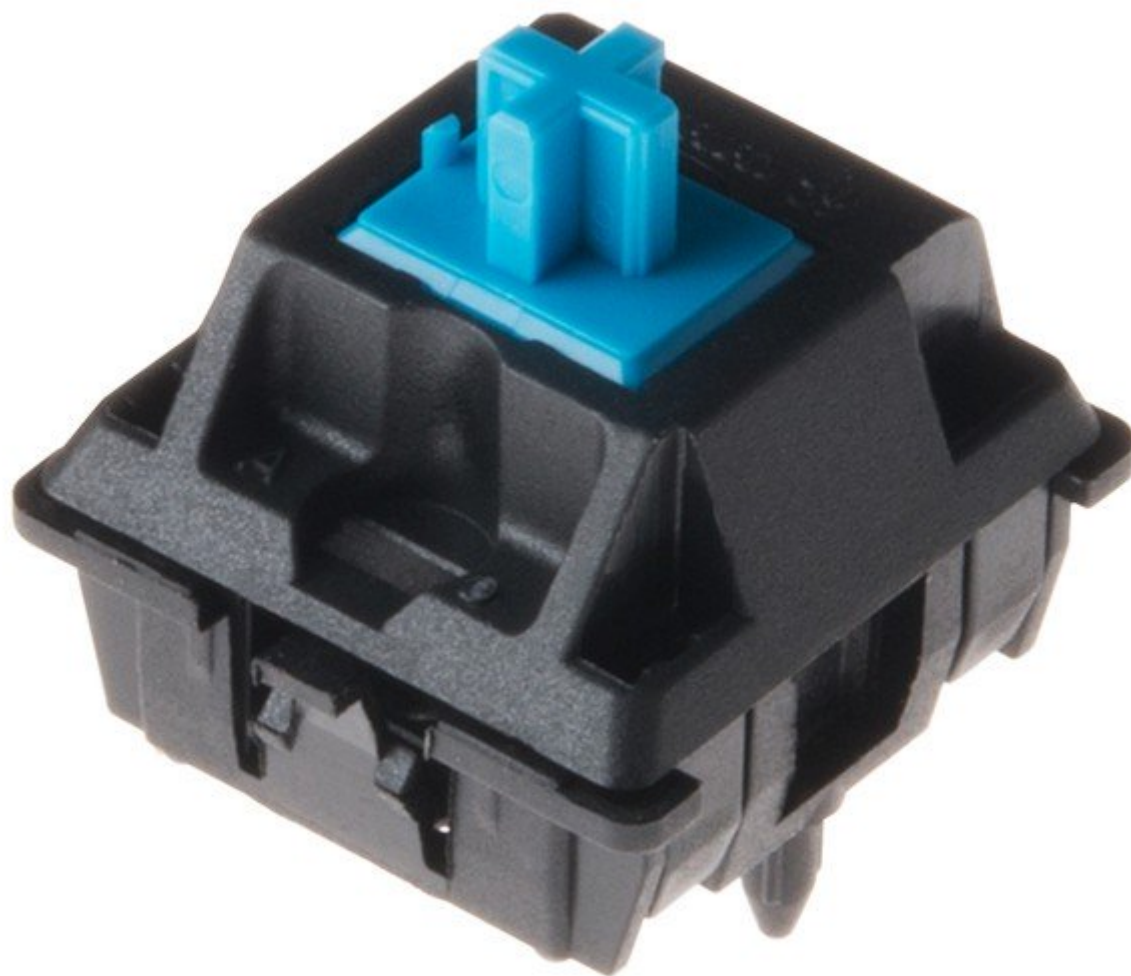
Pedal Closed



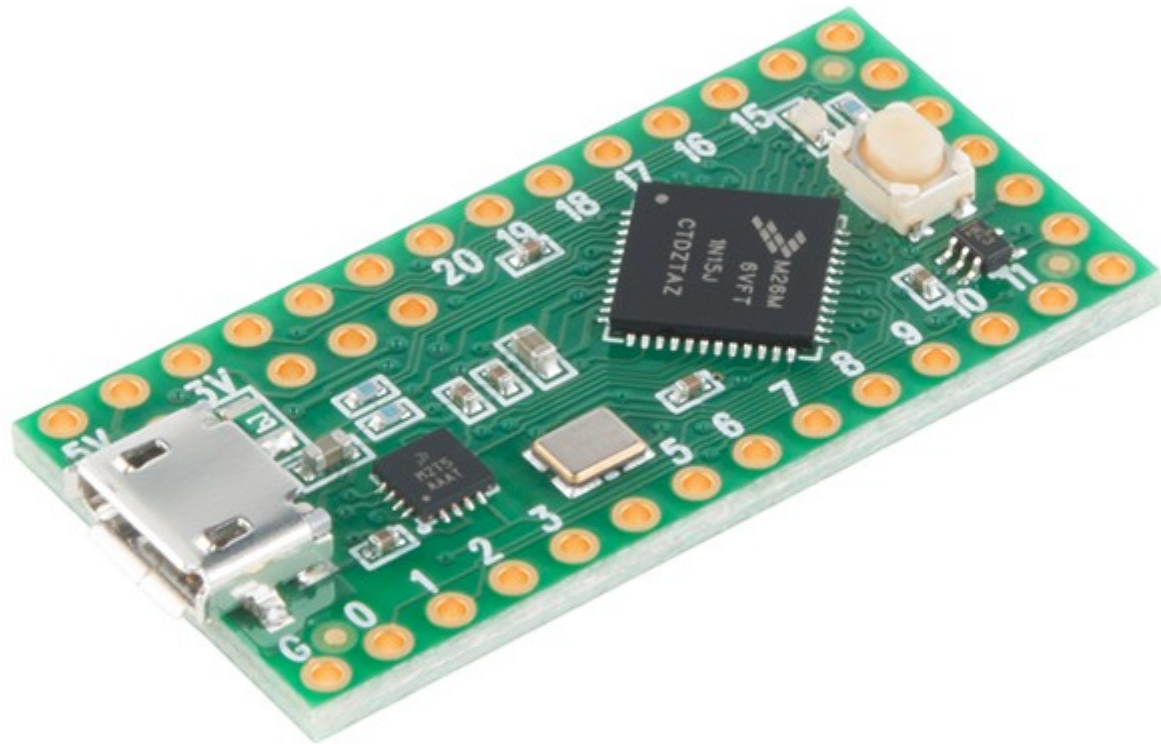
Pedal Open



Switch



Teensy



Setup Development

Configure Teensy

- Install Teensyduino to work with Arduino
- Must be running at all times
- Heaps of libraries included

Setup as USB keyboard

Within Arduino you can set the Teensy as "USB Keyboard"

- Allows access to the Bounce library for key interaction

Code

```
#include <Bounce.h>

Bounce button20 = Bounce(20, 10);
void setup() { pinMode(20, INPUT_PULLUP); }

void loop() {
    button20.update();
    if (button20.fallingEdge()) {Keyboard.press(MODIFIERKEY_CTRL);}
    if (button20.risingEdge()) {Keyboard.release(MODIFIERKEY_CTRL);}
}
```

Include

```
#include <Bounce.h>
```

- Software debouncing (stops multiple signals from your button)
- Arduino checks the pins so fast you could have button bounce issues.

Setup

```
Bounce button20 = Bounce(20, 10);
```

```
void setup() {  
  pinMode(20, INPUT_PULLUP);  
}
```

- Setup my button on pin 20 and waiting for bouncing for 10 milliseconds
- pinMode sets the pin 20 up for input with pullup resistors (stops floating state).

Update

```
button20.update();
```

- Update the read out from the PIN

Check button down

```
if (button20.fallingEdge()) {  
    Keyboard.press(MODIFIERKEY_CTRL);  
}
```

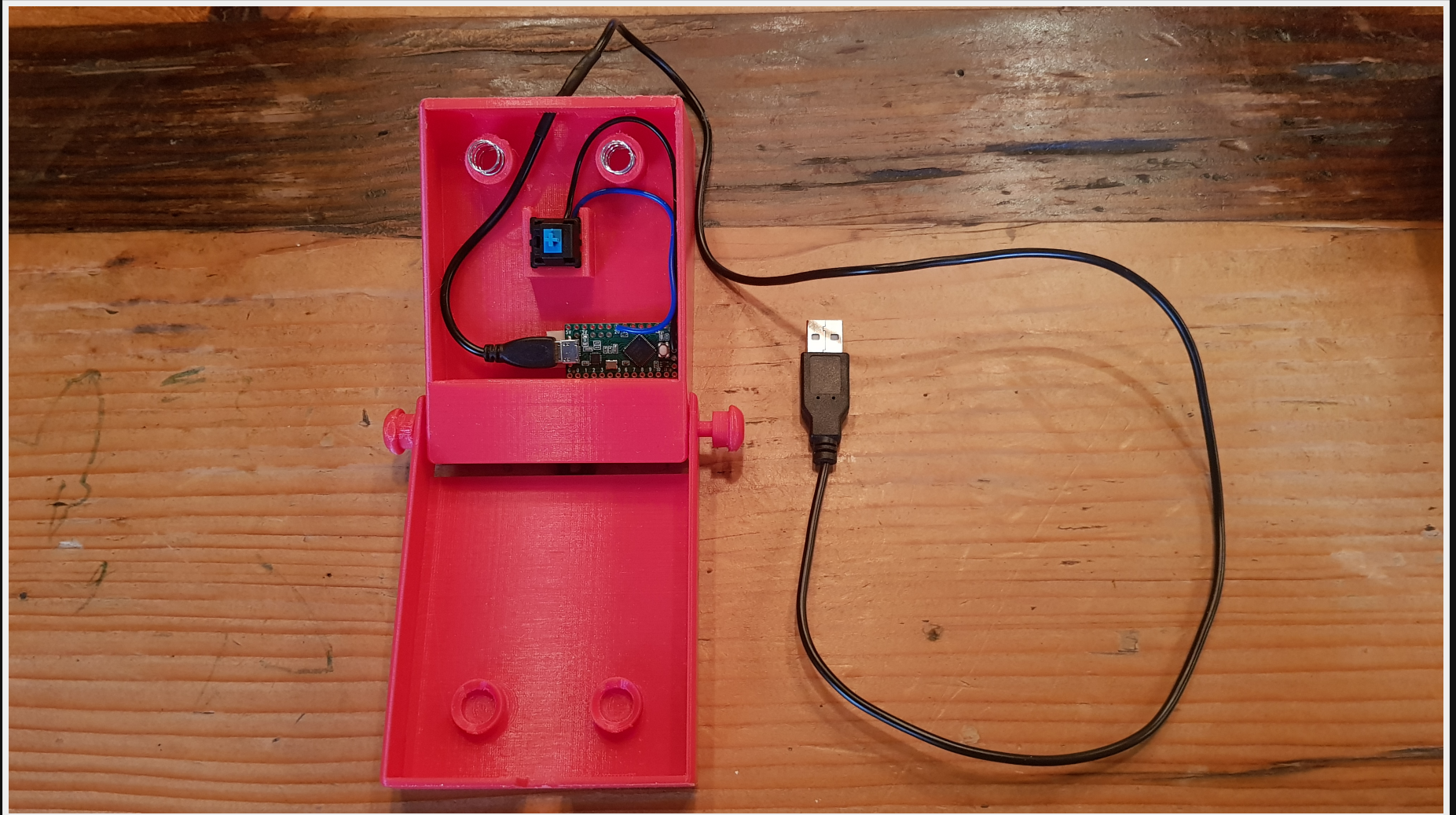
- FallingEdge = Falling from HIGH to LOW voltage
- Press CTRL

Check button up

```
if (button20.risingEdge()) {  
    Keyboard.release(MODIFIERKEY_CTRL);  
}
```

- RisingEdge = Rising for LOW to HIGH
- Release CTRL

Complete Pedal



Solder

Used ground & Pin 20.

- Black = ground
- Blue = data

References

- Bounce library:
<https://playground.arduino.cc/Code/Bounce/>
- Example:
https://www.pjrc.com/teensy/td_keyboard.html
- Usage:
https://www.pjrc.com/teensy/td_libs_Bounce.htm
- pull-up resistors:
<https://learn.sparkfun.com/tutorials/pull-up-resistors/all>
- Kinesis pedals: <https://kinesis-ergo.com/foot-pedals/>

Questions

Email map7777@gmail.com

Twitter [@map7](https://twitter.com/map7)

Github [github: map7](https://github.com/map7)
