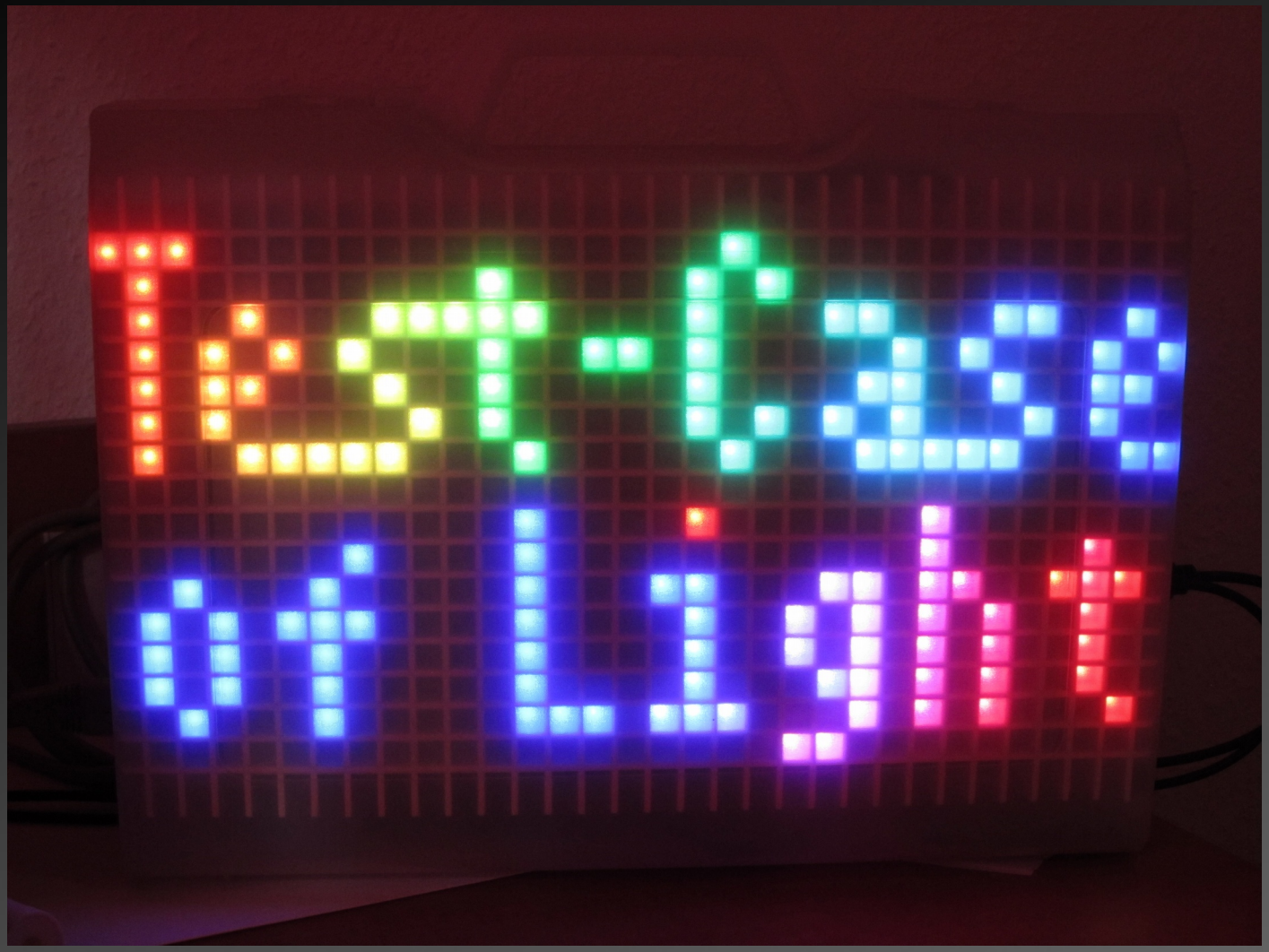
DemoBlaster

Building A "Case Of Light"

How to get and what to do with half a K of LEDs?

by Sven Oliver ('SvOlli') Moll

What is it?



How Did I Get There?

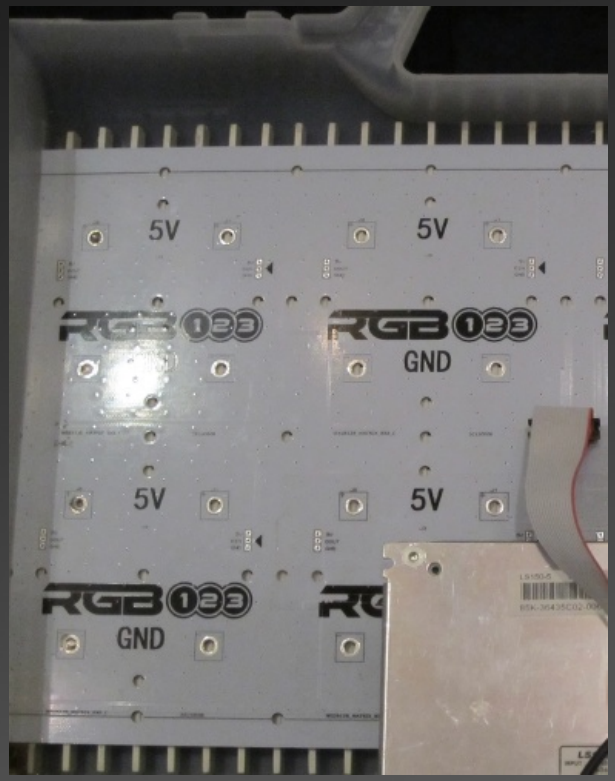
- LED strips containing WS2801 clones
- Connection board for a Raspberry Pi
- Connection cable for Arduino
- Neither worked, though the LEDs were okay
- Wasted a couple of days
- Gave them away after the next try on LEDs worked

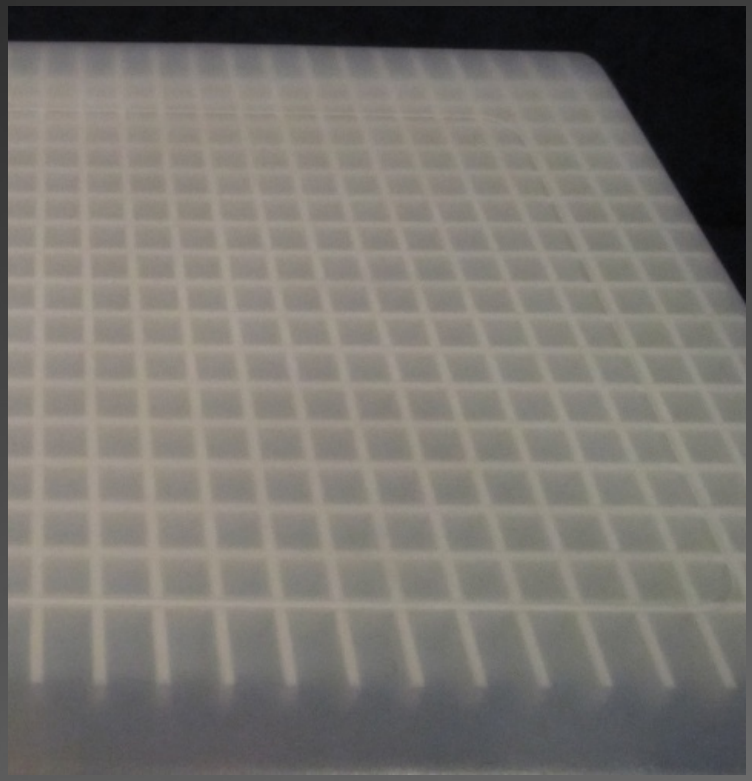
Hardware

- Plastic, translucent, briefcase
- Bought on ebay
- Manufacturer specialized in creating blister wrappings

Hardware

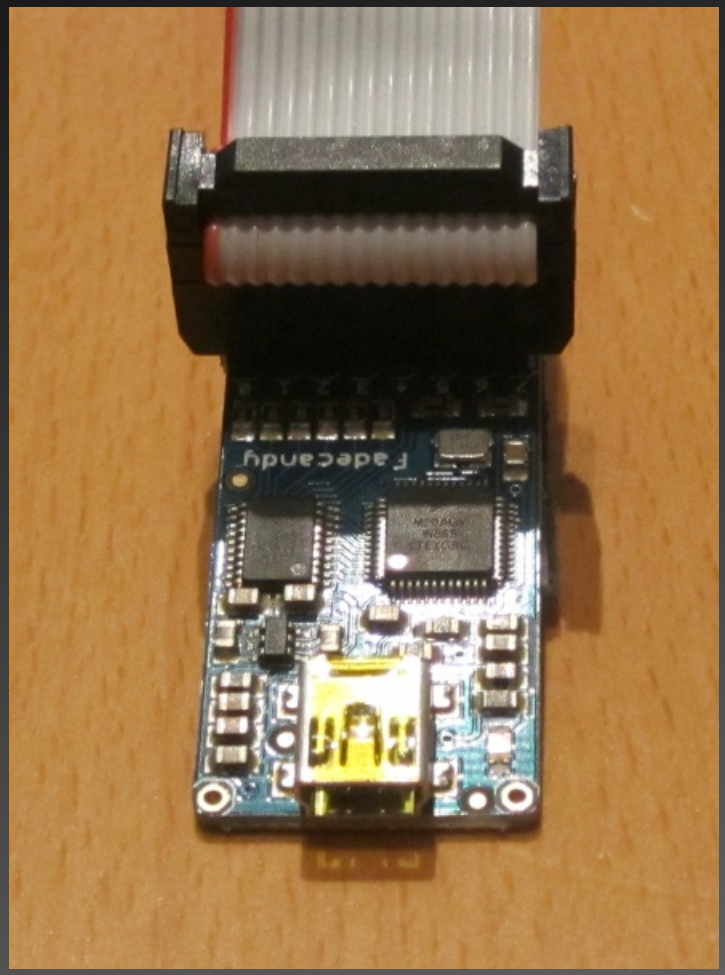
- 32x16 LEDs (24bit color) from rgb-123.com
- Grid created using a CNC milling cutter for wood
- Wood was taken from the backside of a closet





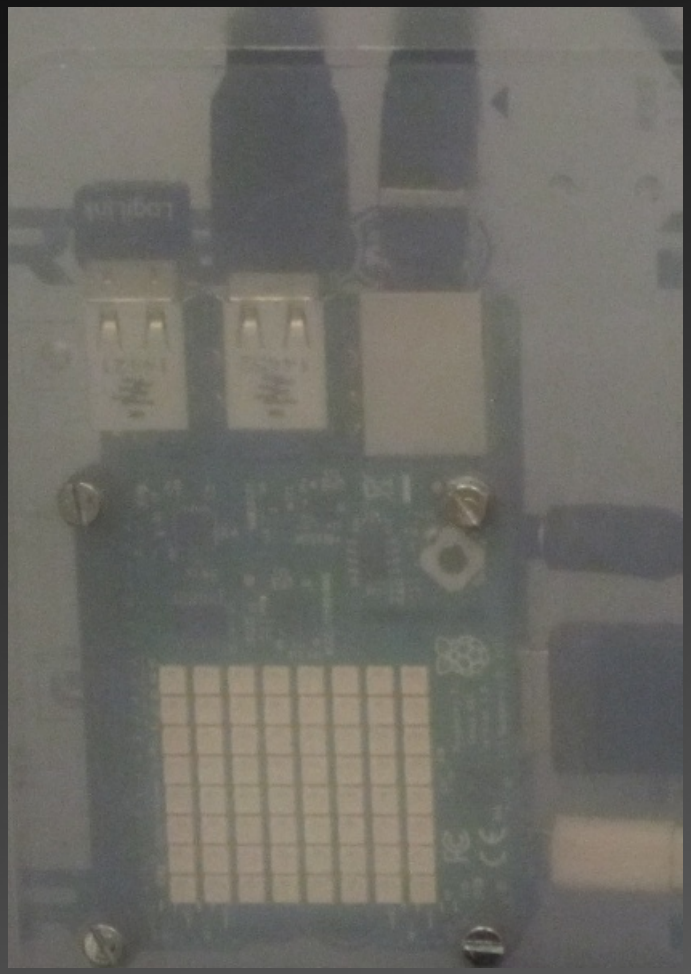
Hardware

- Fadecandy microcontroller (Teensy 3-based)



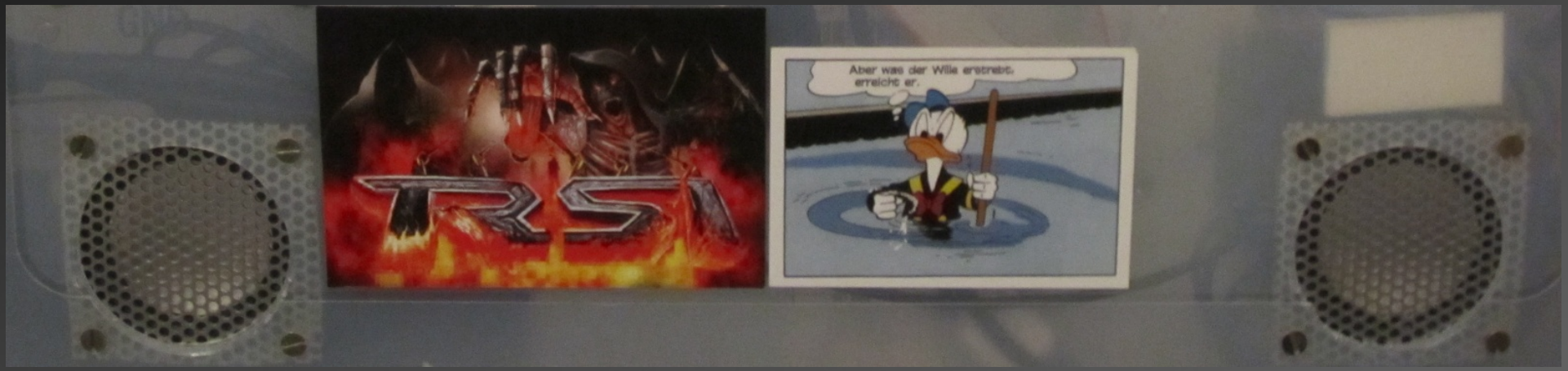
Hardware

- Raspberry Pi 2



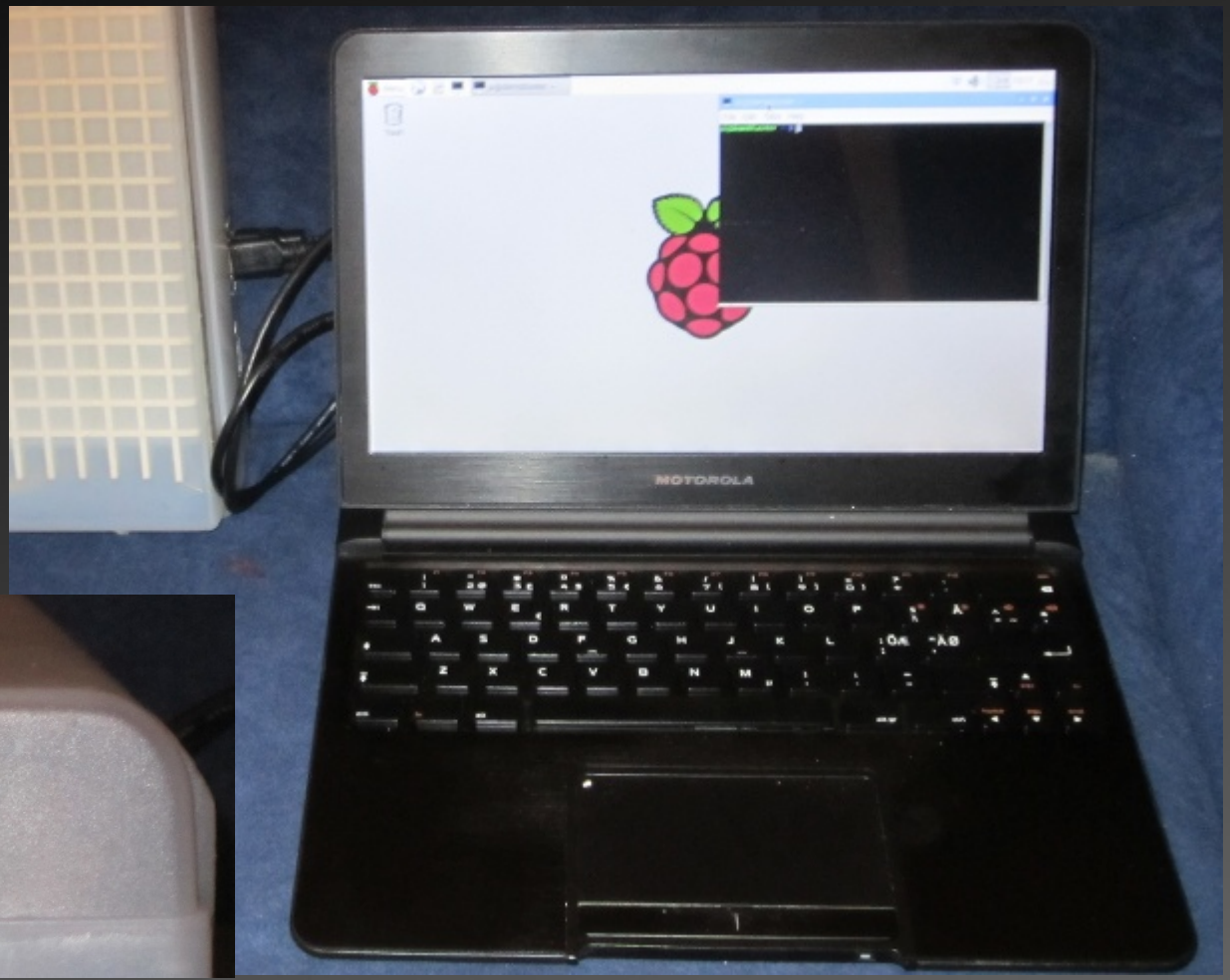
Hardware

- A pair of USB powered speakers with 3.5mm jack
- Standard speakers with case removed



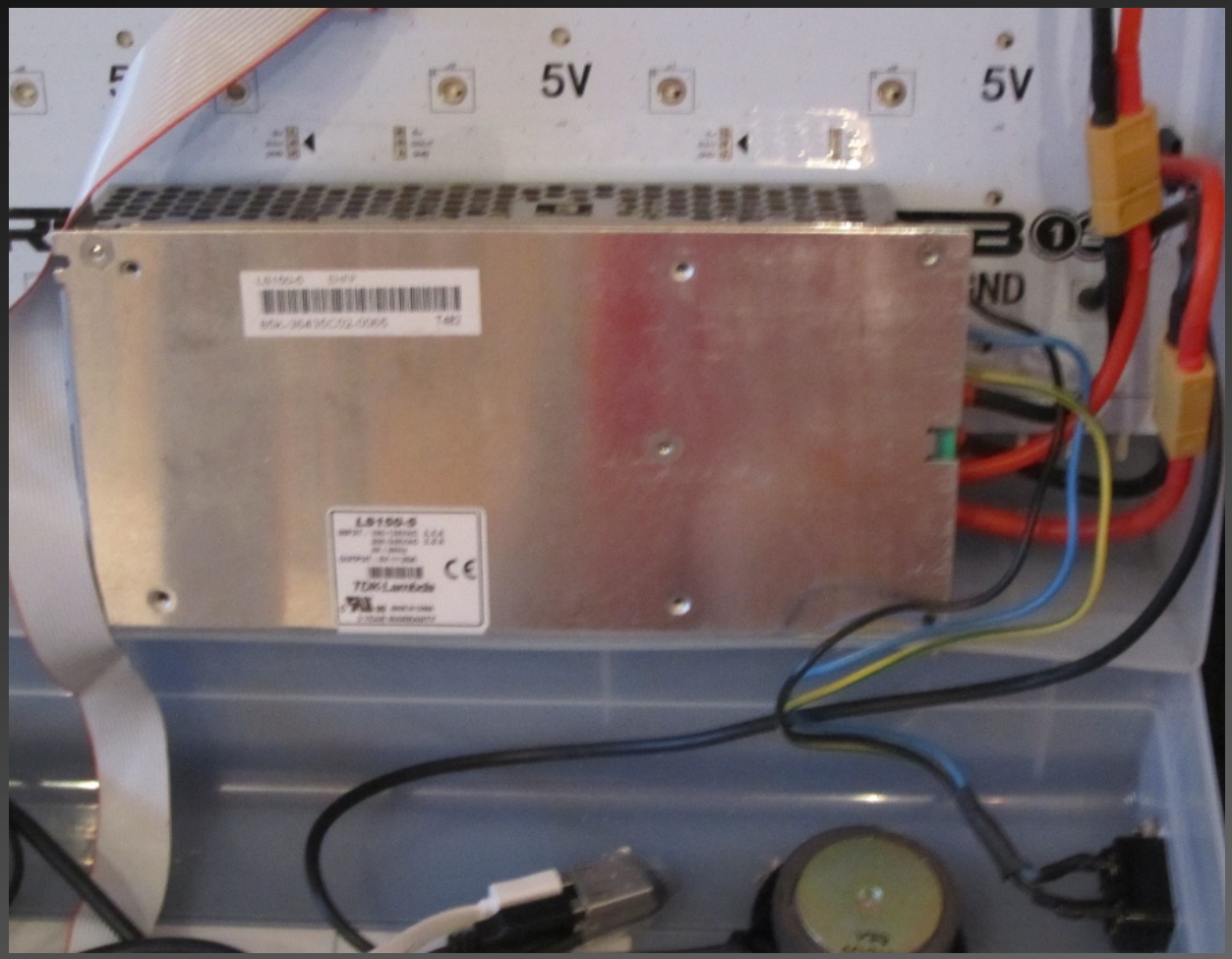
Hardware

- USB Port
- HDMI Port
- LAN Port



Hardware

- A power supply (5V, ~120W)



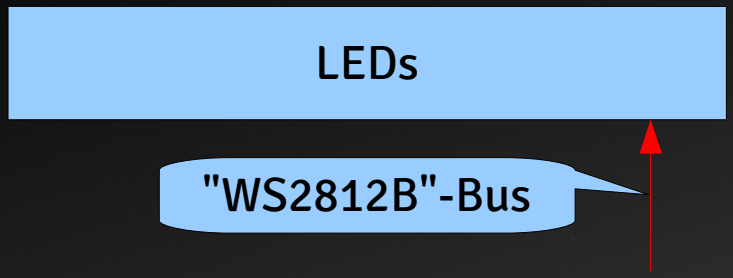
Hardware

- A minion

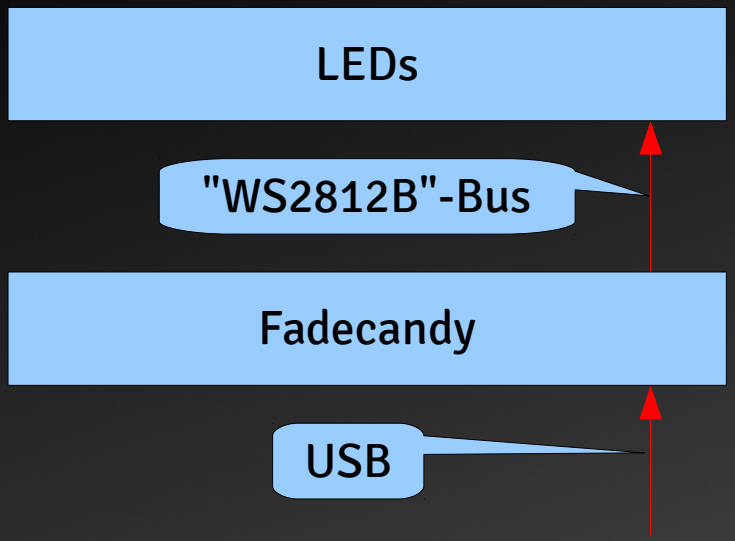
Software

- Fadecandy server
  - Open Pixel Control protocol
- Own client library
  - Written in C
  - Based upon official OPC client library
  - Many other client libraries available
  - C++, Python, Perl and others
  - Anything that can handle binary data in TCP/IP

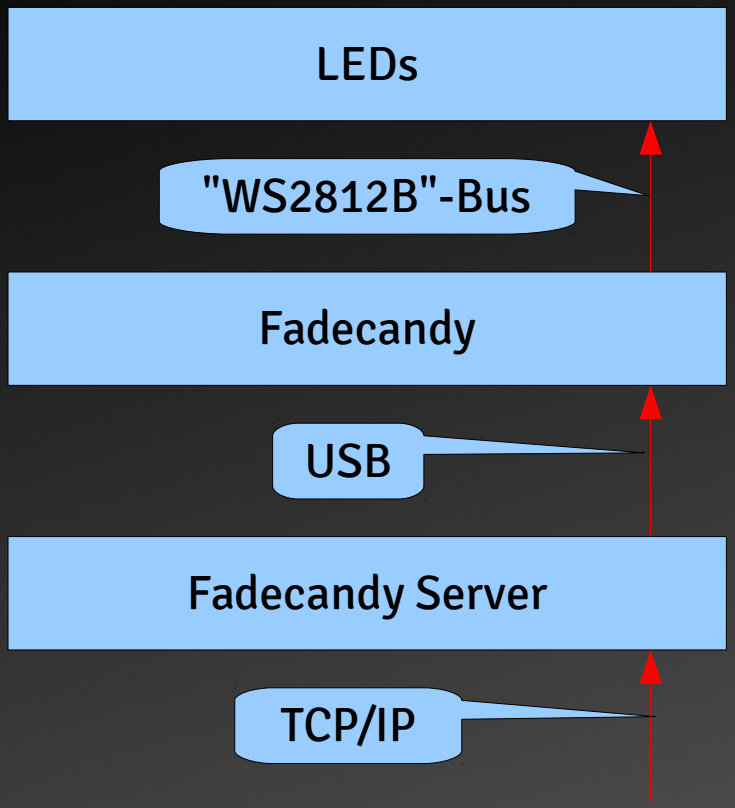
How To Get LEDs Lighted



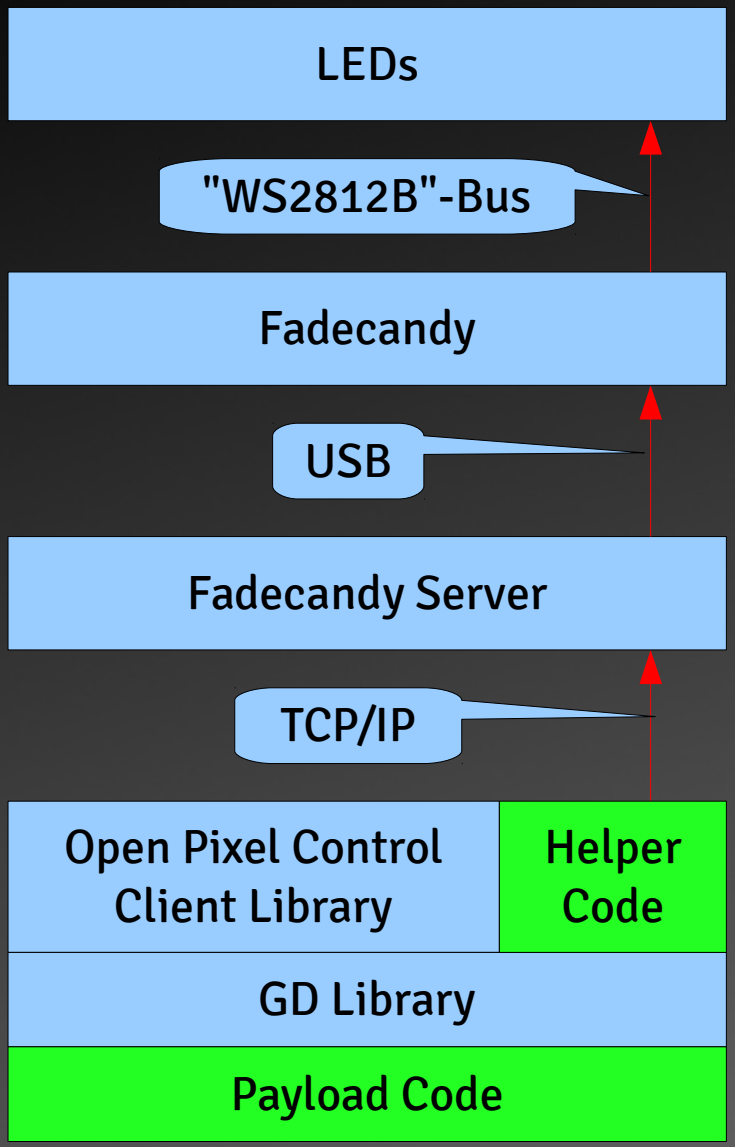
How To Get LEDs Lighted



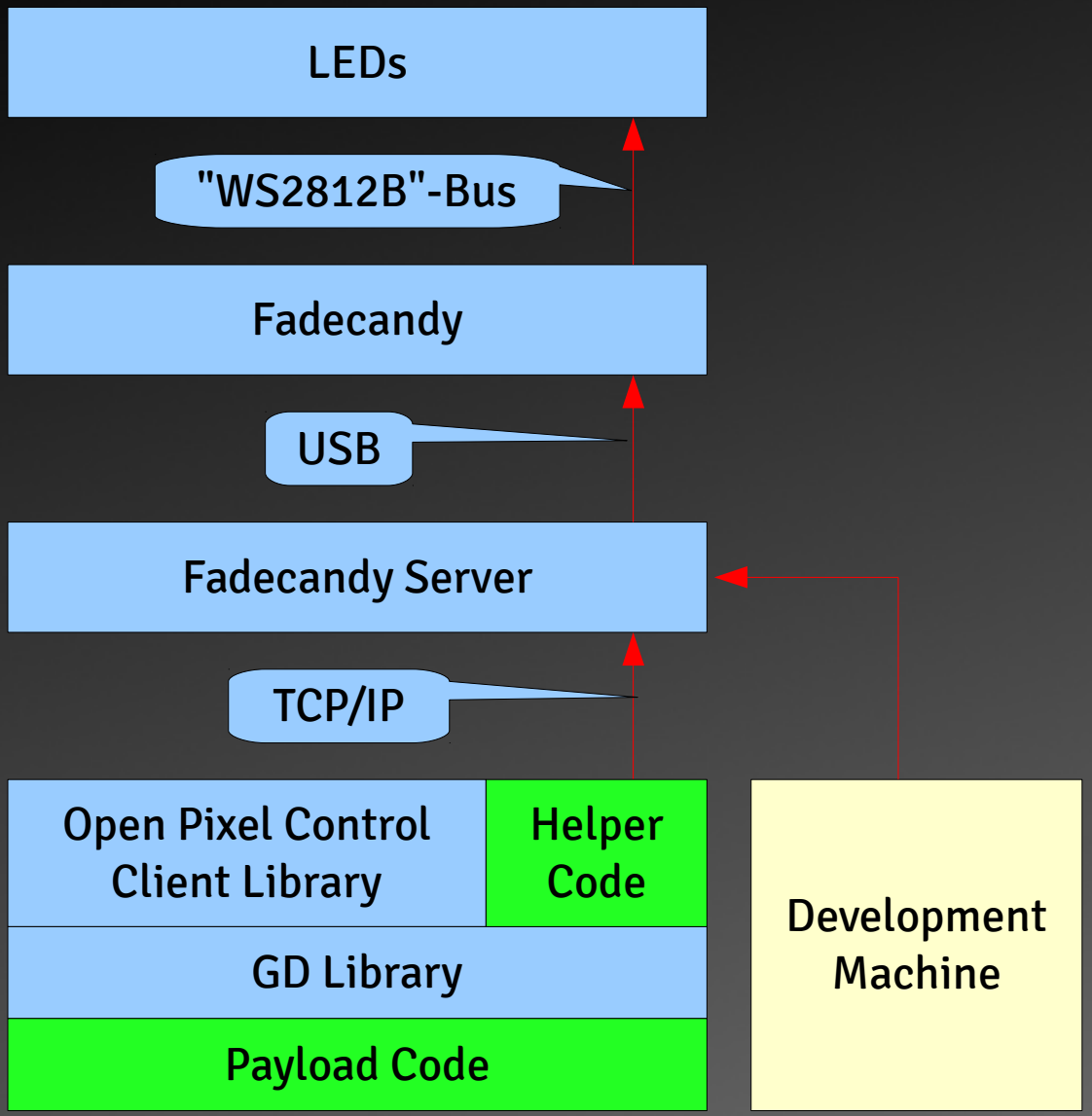
How To Get LEDs Lighted



How To Get LEDs Lighted



How To Get LEDs Lighted



Conclusion

- Building your own LED-grid is possible with (almost) no soldering
- Complete software stack is also available
- Since Fadecandy is a USB device you can use almost anything that runs linux to drive it (ARM, Atom, your notebook) (OS X, and Windows, too)
- Hint: limit the light output of the LEDs, on full power at least one of them tends to fail early
- Software hint: use oversampling and movement

Demos

- Self Organized Session: two hours of demos
- At day 2: 2016-12-28, 22:00, Hall F
- Leitstelle 511