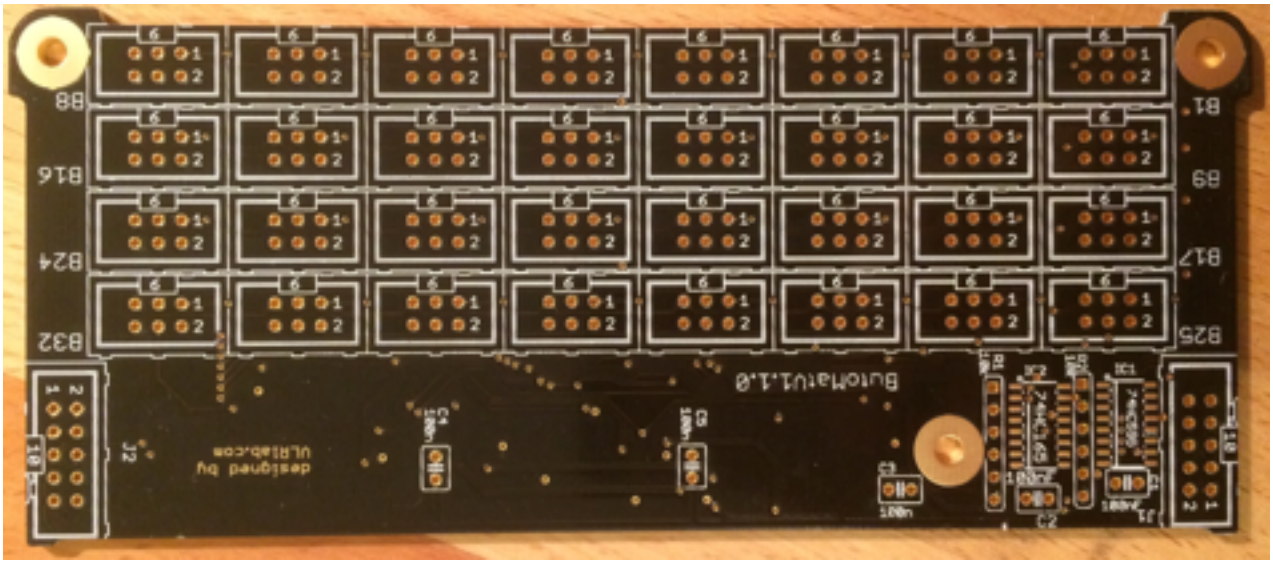

BUTOMAT — USERMANUAL

VERSION: 0.01

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All our freely available information is found at two locations:
- Various repositories on GitHub under the username "novski"
- The Manuals on vlrlab.com/support

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PART	VALUE	DEVICE	PACKAGE	LIBRARY	SHEET
B1-32		ML6	ML6	HARTING	1
C1	100nF	C-EU025-030X050	C025-030X050	CAPACITOR, European symbol	1
C2	100nF	C-EU025-030X050	C025-030X050	CAPACITOR, European symbol	1
C3	100n	C-EU025-030X050	C025-030X050	CAPACITOR, European symbol	1
C4	100n	C-EU025-030X050	C025-030X050	CAPACITOR, European symbol	1
C5	100n	C-EU025-030X050	C025-030X050	CAPACITOR, European symbol	1
D1	FMP1T148	FMP1T148	SC-74A		1
D2	FMP1T148	FMP1T148	SC-74A		1
D3	FMP1T148	FMP1T148	SC-74A		1
D4	FMP1T148	FMP1T148	SC-74A		1
D5	FMP1T148	FMP1T148	SC-74A		1
D6	FMP1T148	FMP1T148	SC-74A		1
D7	FMP1T148	FMP1T148	SC-74A		1
D8	FMP1T148	FMP1T148	SC-74A		1
IC1	74HC595	74HC595SO16D	SO16D		1
IC2	74HC165	74HC165NSO16D	SO16D		1
IC3	74HC595	74HC595SO16D	SO16D		1
IC4	74HC595	74HC595SO16D	SO16D		1
IC5	74HC595	74HC595SO16D	SO16D		1
J1	IN	ML10	ML10		1
J2	OUT	ML10	ML10		1
R1	10k	4306R	SIL6		1
R2	10k	4306R	SIL6		1
R3	220R	4816P-1SOIC16W	SOIC16W		1
R4	220R	4816P-1SOIC16W	SOIC16W		1
R5	220R	4816P-1SOIC16W	SOIC16W		1

1. 32 RGB Button Matrix

1.1. Connections

J1 - SPI connection to CORE
J2 - SPI connection to next Module
B1-32 Button Connectors

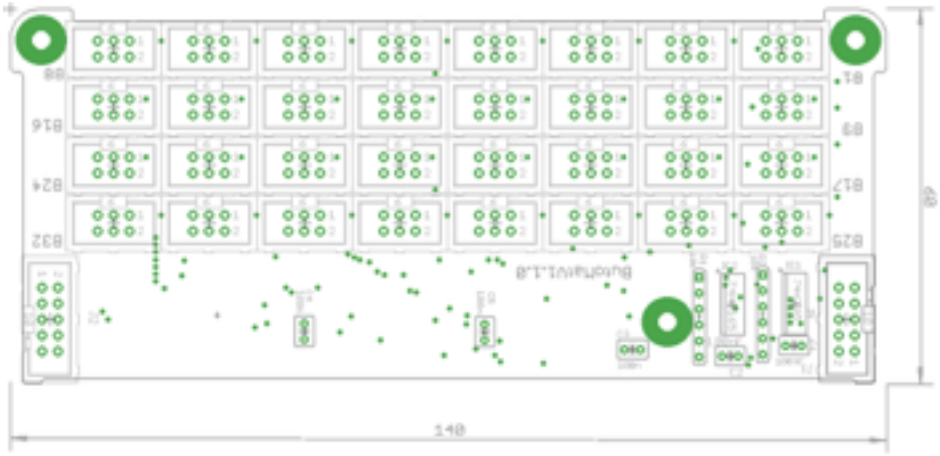
1.2. Electrical Specification

Supply Voltage: 5V
Power-consumption: ???

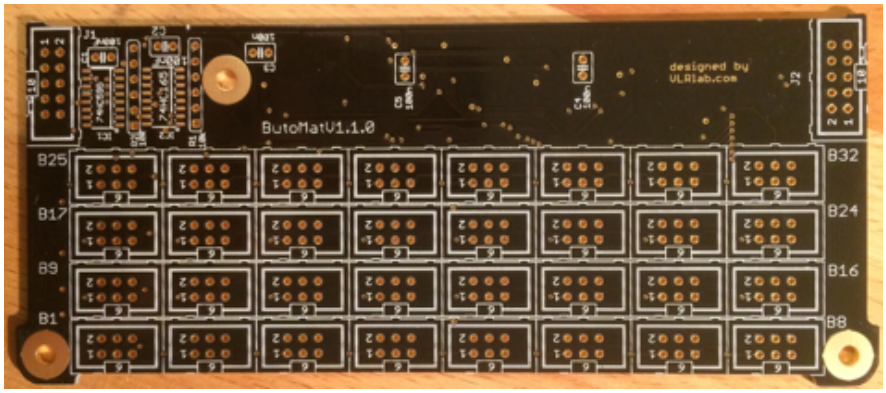
To simplify the soldering i engineered this PCB for SMD Diodes with common cathode.
The Diodes are not easy to solder so be sure you have enough skill to solder them.

2. BOM

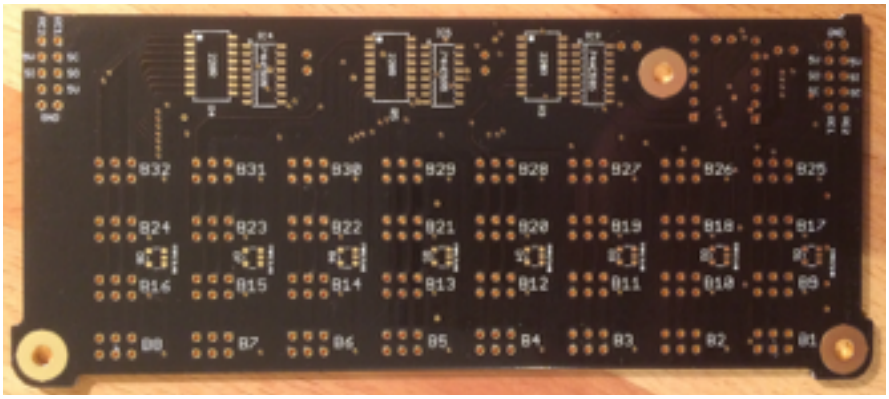
3. OUTLINES



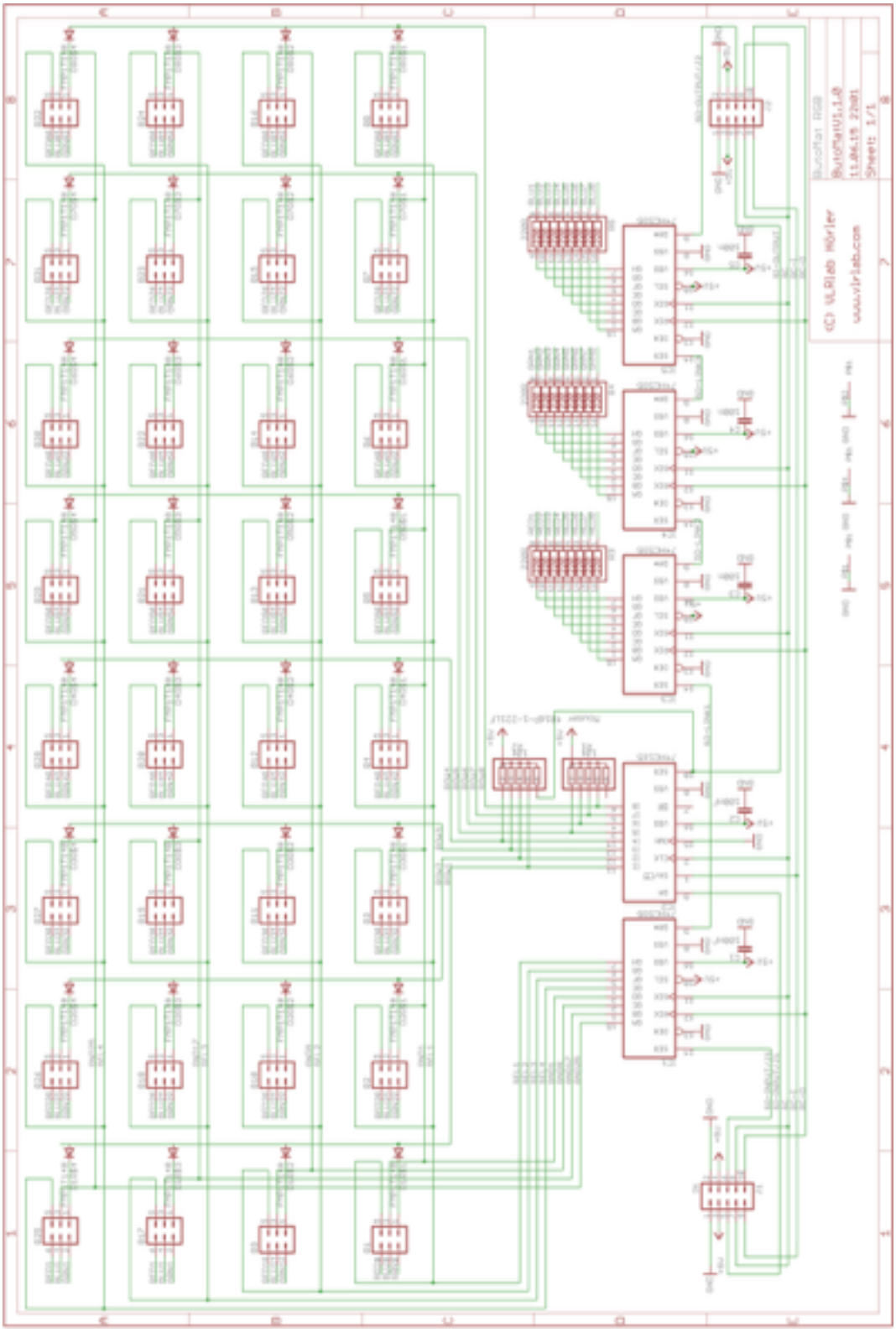
4. FRONTVIEW



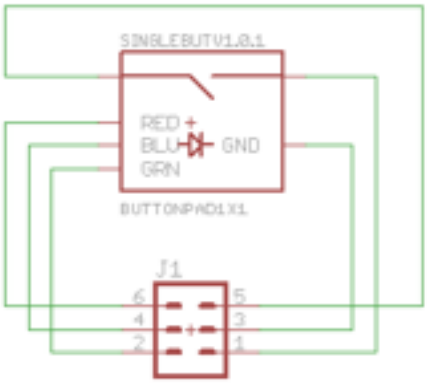
5. REARVIEW



6. Schematics



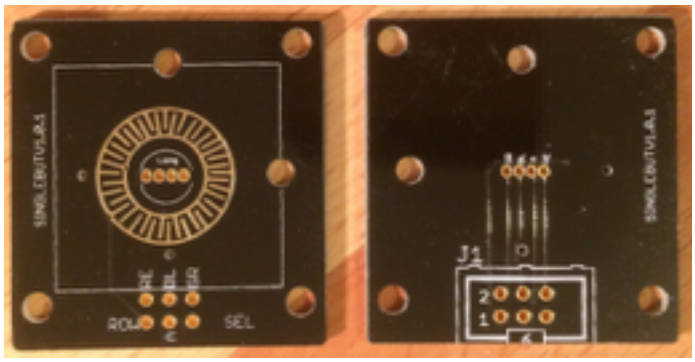
7. Button-Pinout

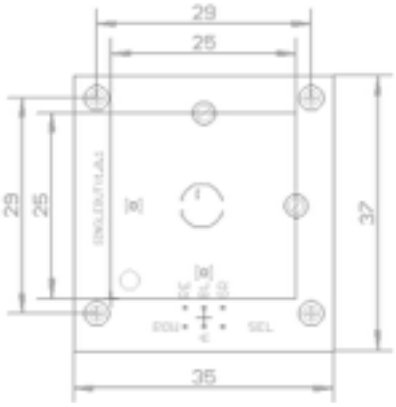


Its possible to connect any Button. The LED must be with a common Kathode.
Of corse i sell a variant. Its based on the cheapest version i cold find. The sparkfun Rubber button. Its Button and cap at the same time what makes it cheap and easy to get it straight trough your Frontpanel without any additional parts…

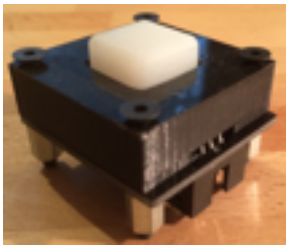
8. But

A PCB for a single Rubberbuton.





To make the Rubberbutton not slip away and get the right distance between your Frontpanel and the Button I decided to create a downloadable 3d Design of a bezel that can be printed with almost any 3d printer.
My prototype lookes like that:



9. Config

1. MIOS

```
RESET_HW

LCD "%C"
LCD "@(1:1:1)UP-and-OK!"

LCD „@(1:1:1) RGB Demo"

DIN_MATRIX  n=1  rows=4  sr_dout_sel1=1  sr_din1=1                  button_emu_id_offset=1001
DOUT_MATRIX n=1  rows=4  sr_dout_r1=2    sr_dout_g1=3 sr_dout_b1=4     led_emu_id_offset=1025

# These button functions forward their value also to LEDs
# In this demo we configure individual brightness levels for the LEDs from EVENT_BUTTON events by rising the
red:green:blue=15:0:0 value 0-15

# This is Row0 - rising brightness from button 1001-1008
EVENT_BUTTON  id=1001  fwd_id=LED:1025  type=NoteOn key=36 chn=1  rgb=15:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1002  fwd_id=LED:1026  type=NoteOn key=37 chn=1  rgb=3:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1003  fwd_id=LED:1027  type=NoteOn key=38 chn=1  rgb=5:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1004  fwd_id=LED:1028  type=NoteOn key=39 chn=1  rgb=7:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1005  fwd_id=LED:1029  type=NoteOn key=40 chn=1  rgb=9:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1006  fwd_id=LED:1030  type=NoteOn key=41 chn=1  rgb=11:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1007  fwd_id=LED:1031  type=NoteOn key=42 chn=1  rgb=13:0:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1008  fwd_id=LED:1032  type=NoteOn key=43 chn=1  rgb=15:0:0 lcd_pos=1:1:2 label="^std_btn"
# This is Row1
EVENT_BUTTON  id=1009  fwd_id=LED:1033  type=NoteOn key=52 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1010  fwd_id=LED:1034  type=NoteOn key=53 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1011  fwd_id=LED:1035  type=NoteOn key=54 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1012  fwd_id=LED:1036  type=NoteOn key=55 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1013  fwd_id=LED:1037  type=NoteOn key=56 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1014  fwd_id=LED:1038  type=NoteOn key=57 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1015  fwd_id=LED:1039  type=NoteOn key=58 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1016  fwd_id=LED:1040  type=NoteOn key=59 chn=1  rgb=0:15:0 lcd_pos=1:1:2 label="^std_btn"
# This is Row2
EVENT_BUTTON  id=1017  fwd_id=LED:1041  type=NoteOn key=68 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1018  fwd_id=LED:1042  type=NoteOn key=69 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1019  fwd_id=LED:1043  type=NoteOn key=70 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1020  fwd_id=LED:1044  type=NoteOn key=71 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1021  fwd_id=LED:1045  type=NoteOn key=72 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1022  fwd_id=LED:1046  type=NoteOn key=73 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
```

```
EVENT_BUTTON  id=1023  fwd_id=LED:1047  type=NoteOn key=74 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1024  fwd_id=LED:1048  type=NoteOn key=75 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
# This is Row3
EVENT_BUTTON  id=1025  fwd_id=LED:1049  type=NoteOn key=68 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1026  fwd_id=LED:1050  type=NoteOn key=69 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1027  fwd_id=LED:1051  type=NoteOn key=70 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1028  fwd_id=LED:1052  type=NoteOn key=71 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1029  fwd_id=LED:1053  type=NoteOn key=72 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1030  fwd_id=LED:1054  type=NoteOn key=73 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1031  fwd_id=LED:1055  type=NoteOn key=74 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
EVENT_BUTTON  id=1032  fwd_id=LED:1056  type=NoteOn key=75 chn=1  rgb=0:0:15 lcd_pos=1:1:2 label="^std_btn"
```