Maybe add battery and regulator to wear it

+5V F1 U2 XC6206P332MR +3.3V
500mA
VI VO
GND
C10 C11
10uF 10uF
GND

C1 C3 C5 C6 C7 C9
10uF 100nF 100nF 100nF 100nF 100nF
GND

+3.3V

+3.3V
SW1
R1 BOOT0
10k
SW_SPDT
GND

NRST NRST
BOOT0
HSE_IN PF0
HSE_OUT PF1

PC13
PC14
PC15

U1
VDD VDD VDD VDD VDDA

TODO check pins for tristate capabilities

NRST
BOOT0
PF0
PF1

PA0 LED0
PA1 LED1
PA2 LED2
PA3 LED3
PA4 LED4
PA5 LED5
PA6 LED6
PA7 LED7
PA8 LED8
PA9 LED9
PA10
PA11 USB_D−
PA12 USB_D+
PA13 SWDIO
PA14 SWCLK
PA15

LED Matrix

PB0 PB0
PB1 PB1
PB2 PB2
PB3 PB3
PB4 PB4
PB5 PB5
PB6 PB6
PB7 PB7
PB8 PB8
PB9
PB10
BTN0 PB11
BTN1 PB12
PB13
PB14
PB15

VSS VSSA
GND
STM32F070CBTx

+3.3V J1 +3.3V
PB8 PB0
PB1
SDA PB2
PB7 SCL
PB6
PB5
+3.3V PB4
PB3
SWDIO
SWCLK
GND
Conn_02x12_Odd_Even
GND

J3
TYPE-C-31-M-12 +5V
VBUS A4B9
VBUS_1 B4A9

R2
5.1k A5 CC1 SBU2 B8
USB_D+ A6 DP1 DN2 B7 USB_D−
USB_D− A7 DN1 DP2 B6 USB_D+
GND A8 SBU1 CC2 B5
5.1k
R3
GND

S4 SHIELD_3
S3 SHIELD_2
S2 SHIELD_1 GND A1B12
S1 SHIELD GND_1 B1A12
GND

TODO: check footprint assigned pins

HSE_IN HSE_OUT
Y1
16MHz
C2 C4
10uF 10uF
GND

NRST
C8
100nF SW2
SW_Push
GND

BTN0
SW3
SW_Push
GND

BTN1
SW4
SW_Push
GND

Martijn Casteel
Sheet: /
File: virm-stm32.kicad_sch
Title: VIRM-STM32
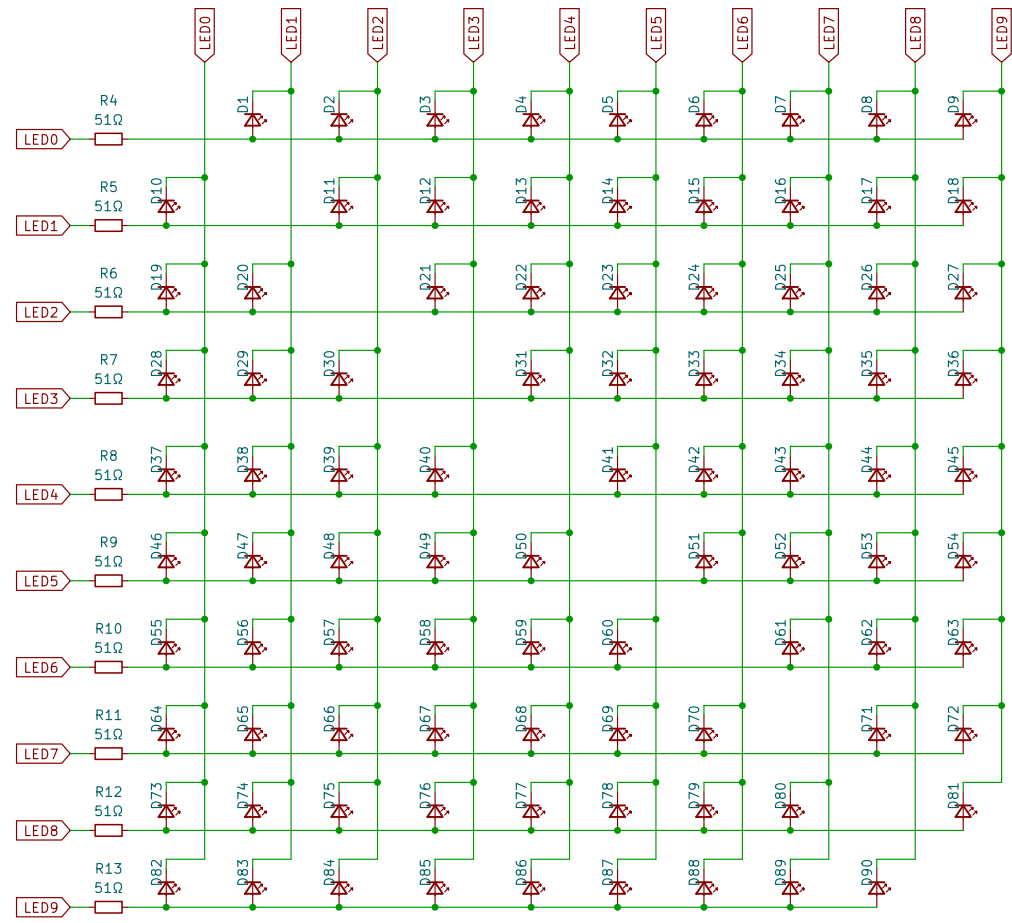Size: A4   Date: 2024-03-24   Rev: 1.0
KiCad E.D.A. 8.0.1   Id: 1/2

LED matrix using charlieplexing. MCU requires a tri-state to power led's or not

$$R = (Vs - Vf) / If = (3.3 - 2.28) / 0.020 = 51\Omega$$

TODO: check current limiting resistor