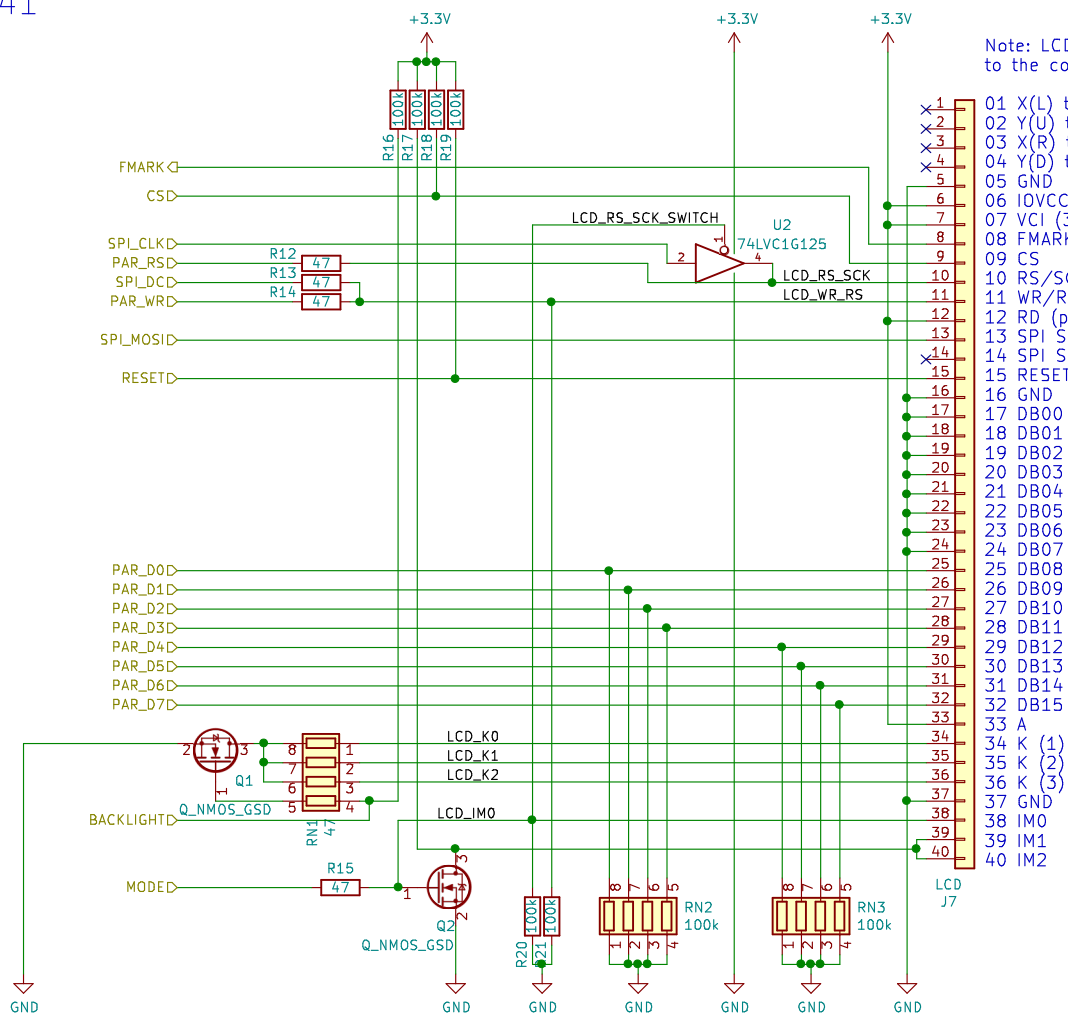


LCD
Type: Z240IT008
Controller: ILI9341
Size: 2.4 inch



Note: LCD pin numbering on the flatflex cable is reversed compared to the connector so pin 40 here is pin 1 on the LCD itself!

- 01 X(L) touch
- 02 Y(U) touch
- 03 X(R) touch
- 04 Y(D) touch
- 05 GND
- 06 IOVCC (3.3v)
- 07 VCI (3.3v)
- 08 FMARK (frame sync)
- 09 CS
- 10 RS/SCK (parallel; register select, SPI; clock)
- 11 WR/RS (parallel: write at rising edge, SPI: register select)
- 12 RD (parallel: read at rising edge)
- 13 SPI SDI (if not used: pull up/down)
- 14 SPI SDO
- 15 RESET
- 16 GND
- 17 DB00
- 18 DB01
- 19 DB02
- 20 DB03
- 21 DB04
- 22 DB05
- 23 DB06
- 24 DB07
- 25 DB08
- 26 DB09
- 27 DB10
- 28 DB11
- 29 DB12
- 30 DB13
- 31 DB14
- 32 DB15
- 33 A
- 34 K (1)
- 35 K (2)
- 36 K (3)
- 37 GND
- 38 IM0
- 39 IM1
- 40 IM2

SPI: IM0 = 0, IM1 = 1, IM2 = 1
PAR: IM0 = 1, IM1 = 0, IM2 = 0

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Sheet: /LCD/

File: lcd.sch

Title: MCH2021 badge - LCD

Size: A4 Date: 2021-01-14

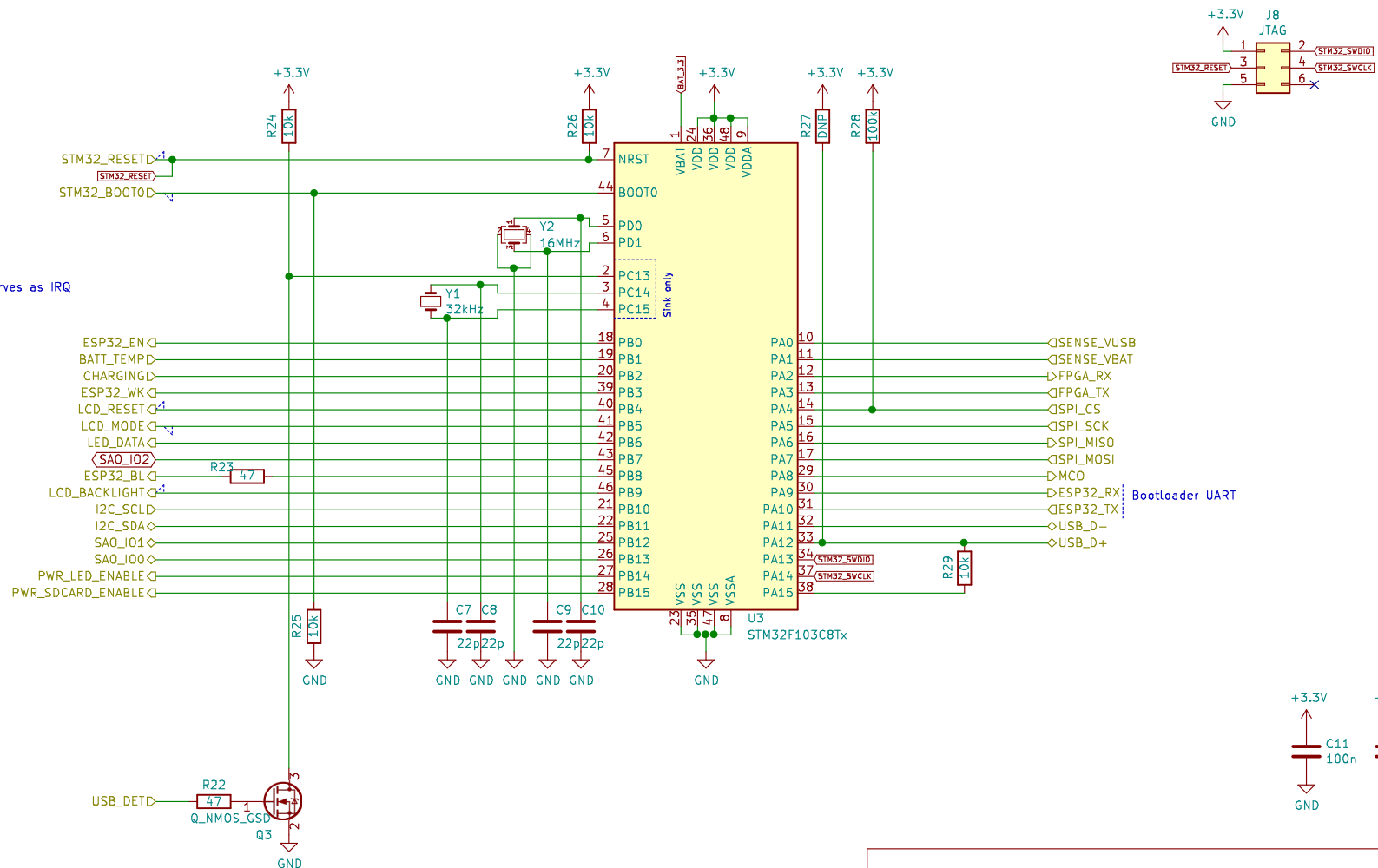
KiCad E.D.A. kicad 5.1.9

Rev: 2

Id: 2/9

STM32 microcontroller

The ESP32 BL pin also serves as IRQ



if using hardware time and the aproach of DMA > Timer Output
compare register you will need bridge pb15 and pb11 so we can
select or spi or tim

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Sheet: /STM32/

File: stm32.sch

Title: MCH2021 badge – STM32 microcontroller

Size: A4

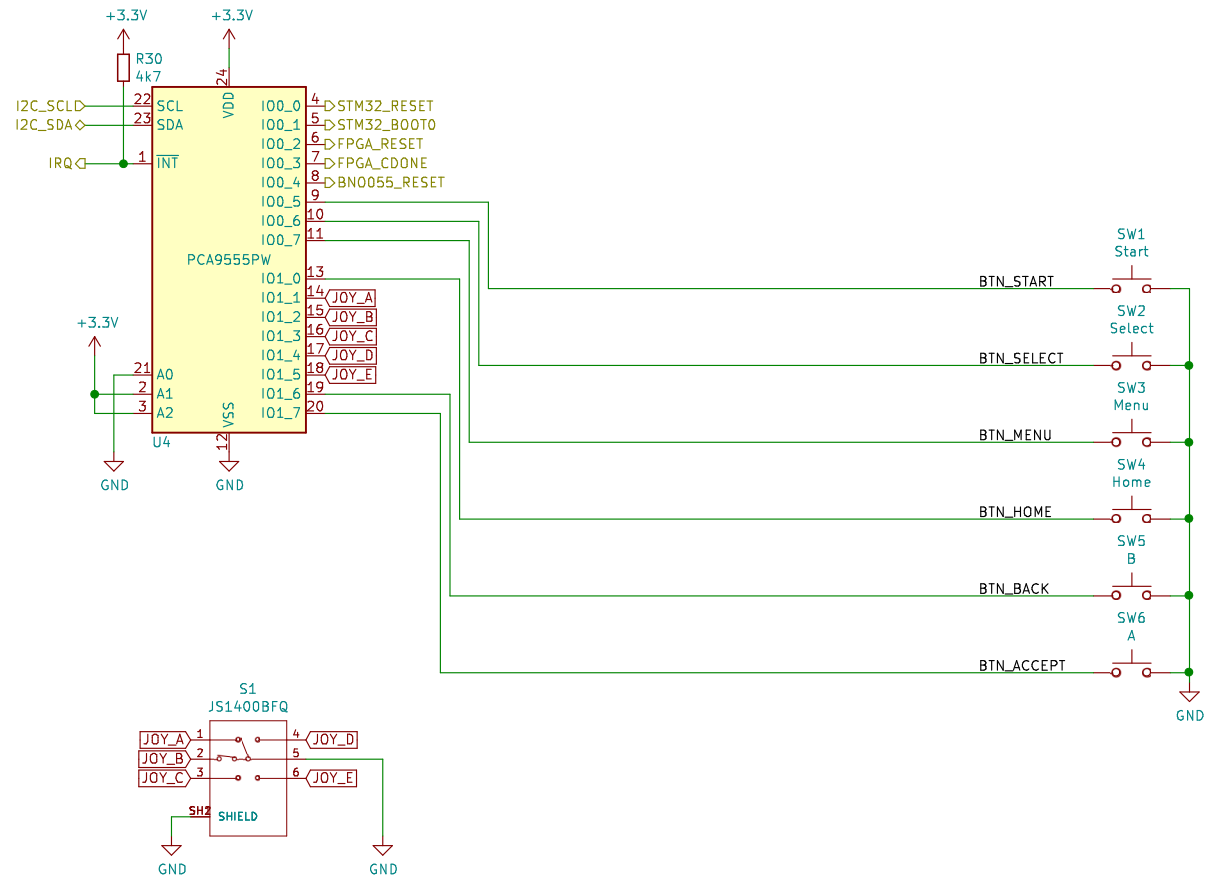
Date: 2021-01-14

Rev: 2

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Id: 3/9

I2C I/O expander



+3.3V
C14
100n
GND

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Sheet: /BUTTONS/
File: buttons.sch

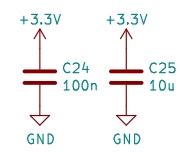
Title:

Size: A4	Date: 2021-01-14
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Size: A4	Date:
KiCad E.D.A.	kicad 5.1.9

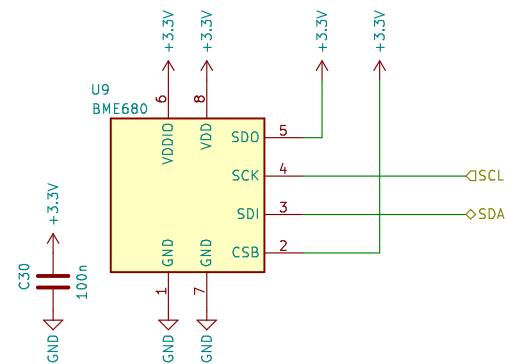
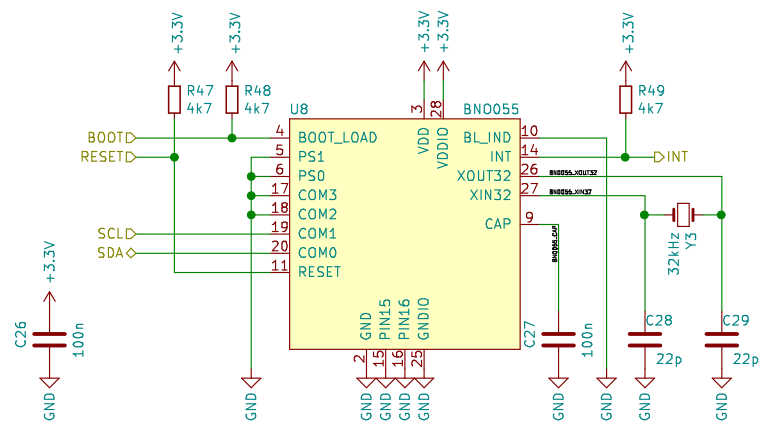
Rev: 2

Id: 4/9



Rev: 2
Id: 5/9

BOSCH BN0055 & BME680 SENSORS



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Sheet: /BOSCH/

File: bosch.sch

Title: MCH2021 badge – BOSCH

Size: A4

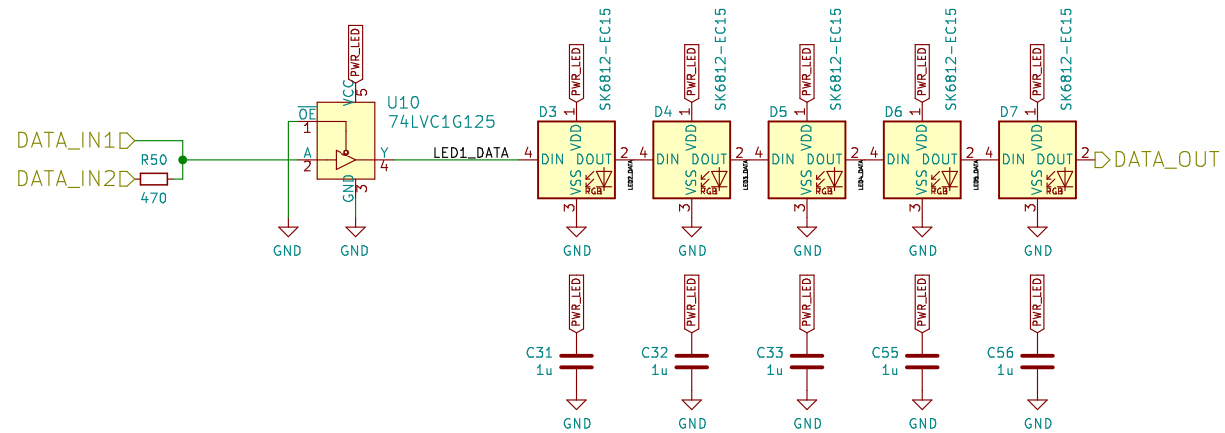
Date: 2021-01-14

Rev: 2

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Id: 6/9

WS2812B LEDs



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Sheet: /LED/
File: led.sch

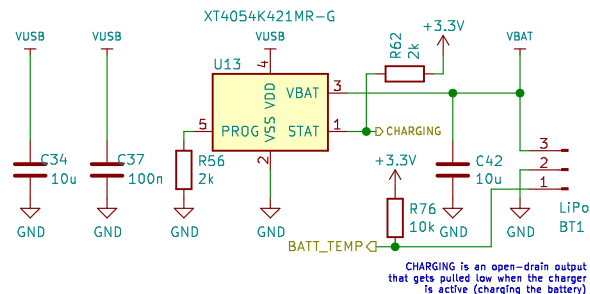
Title:

Size: A4
KiCad E.D.A. kicad 5.1.9

Date: 2021-01-14

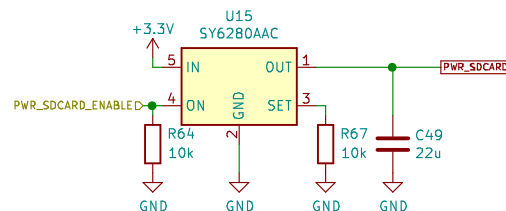
Rev: 2
Id: 7/9

Battery & battery charger



Switched power: 3.3v for SDCARD

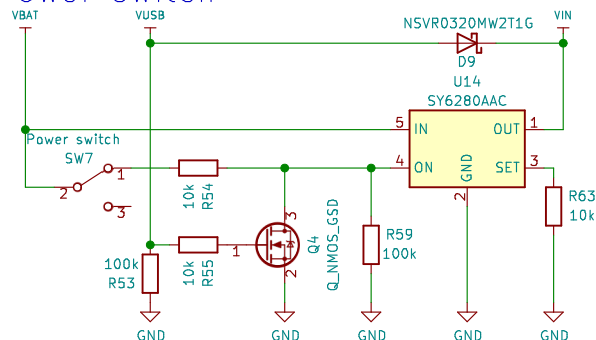
Iset = 0.58A = 6800 / 10kOhm



Note:

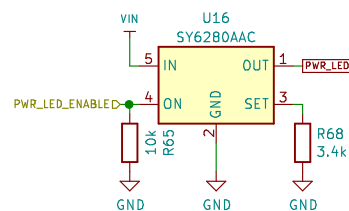
All control signals are hierarchical labels while all power rails are global

Power switch

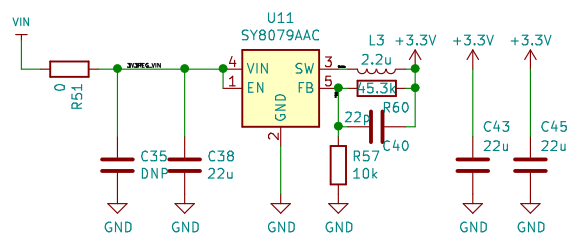


Switched power: Vin for LEDs

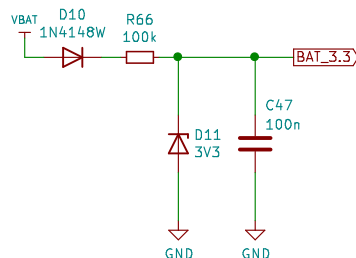
Iset = 2A = 6800 / 3.4kOhm



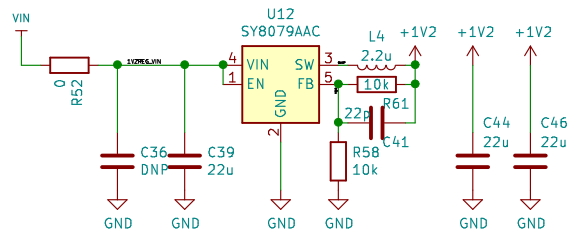
3.3v voltage regulator



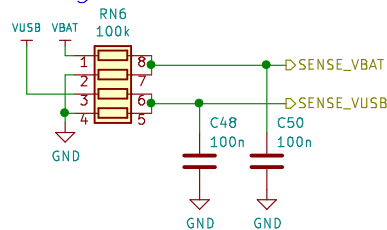
3.3v voltage regulator for RTC backup



1.2v voltage regulator



Voltage sensing



BADGE.TEAM

Sheet: /POWER/

File: power.sch

Title: MCH2021 badge – Power management

Size: A4

Date: 2021-01-14

KiCad E.D.A. kicad 5.1.9

Rev: 2

Id: 8/9

