

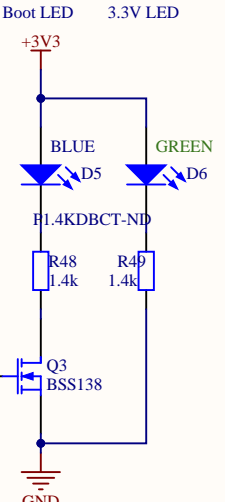
Pinout:
9 - Red - Drive - Red
8 - Black - Drive - Black
7 - Red - Steering - Red/Black(AWD)
6 - Black - Steering - Blue/Red(AWD)
5 - Red - Pot - Red
4 - Black - Pot - Yellow
3 - Black - Pot - Black
2 - Red - Batt+ - Red
1 - Black - Batt- - Black

A LED strip of WS2812b can be connected here. Which can be used as headlights, blinkers or communication with other units

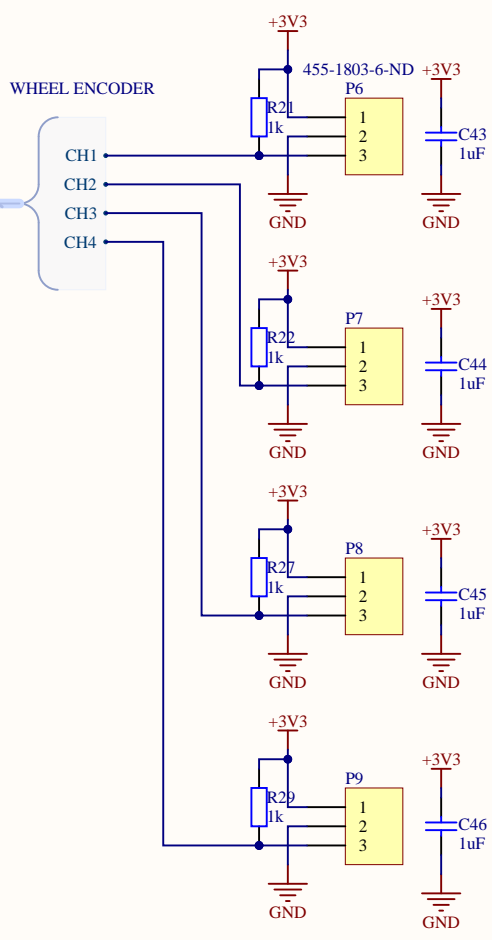
+5
C40
1uF
GND

+5
P5
1 2 3
GND

Status LEDs



Wheel encoder Con.



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project:
CRS RC car

Drawing number: 1	Rev: v.0.0P3	Format: A3	Laboratory: *	Sheet: Main.SchDoc
Date: 02/06/2022 13:13:22			Drawn by: MA	Page 1 of 6
File: C:\Users\Marcus\Documents\ETH\Altium SVN\CRS RC car v00P3\Main.SchDoc				

A

B

C

D

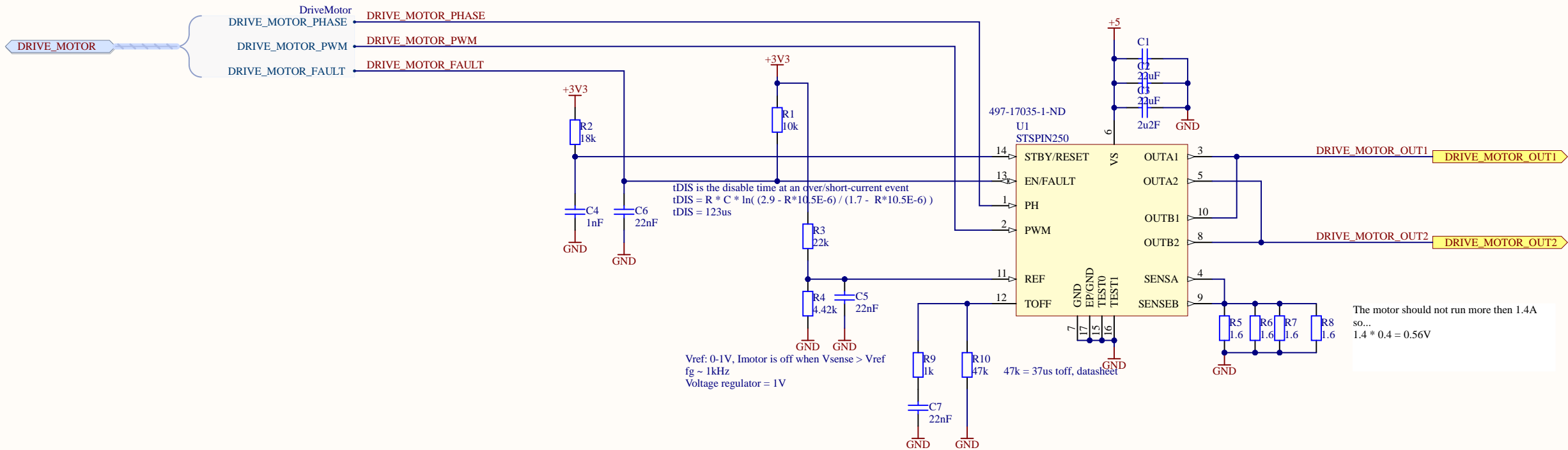
A

B

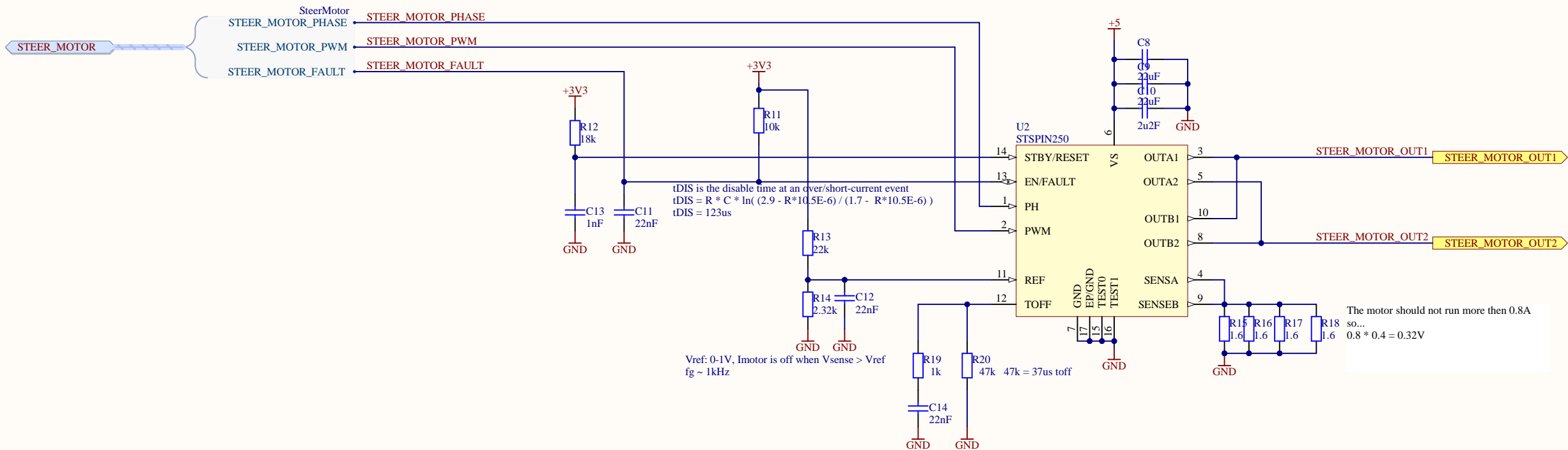
C

D

H-Bridge Drive



H-Bridge Steer



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project:

CRS RC car

Drawing number: 2

Rev: v.0.0P3

Format:

Laboratory: *

Sheet: Motor_driver.SchDoc

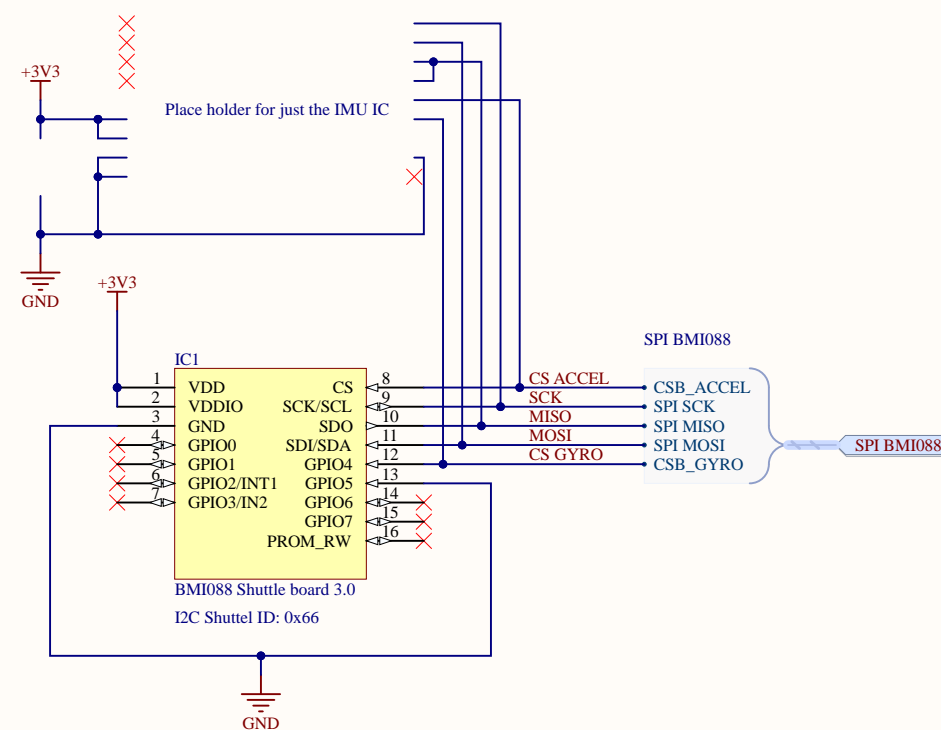
Date: 02/06/2022 13:13:22

A3

Drawn by: MA

Page 2 of 6

File: C:\Users\Marcus\Documents\ETH\Altium SVN\CRS RC car v00P3\Motor_driver.SchDoc



A

B

C

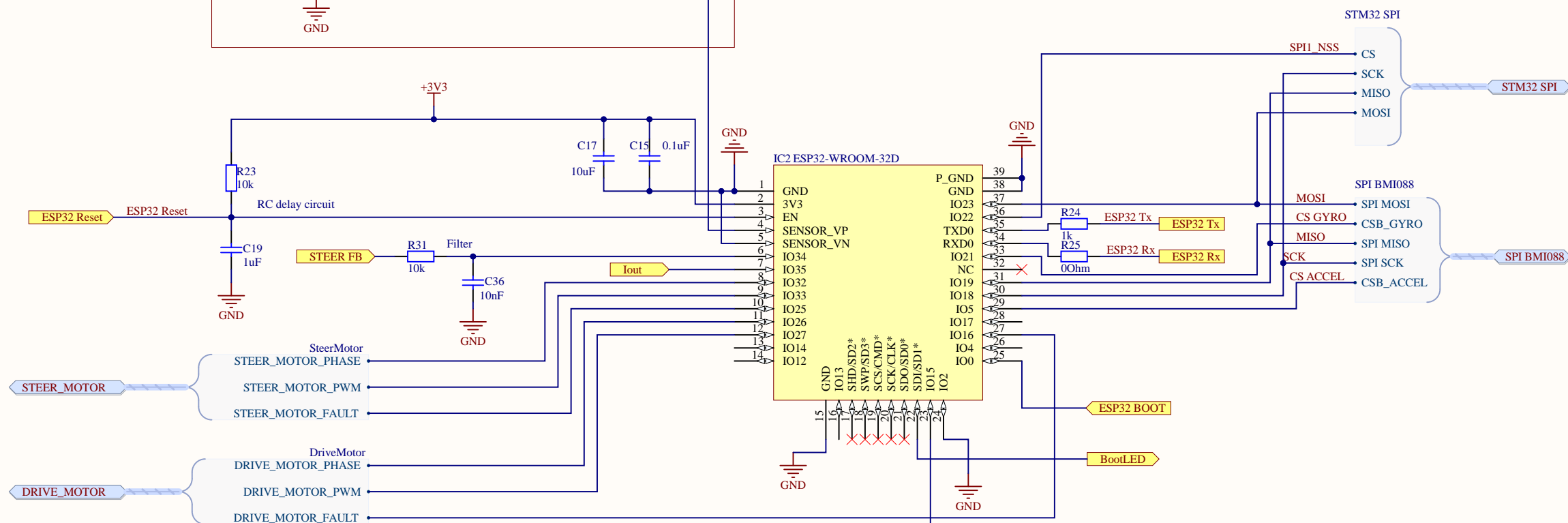
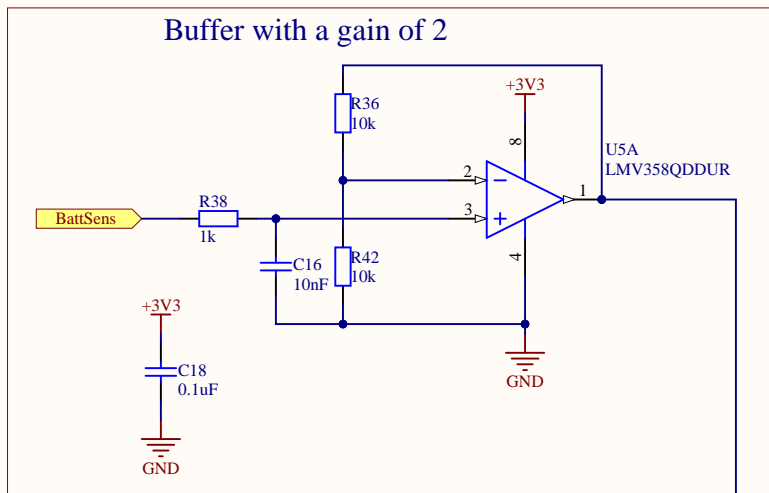
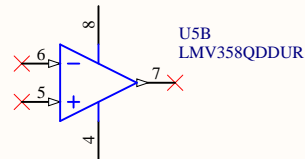
D

A

B

C

D



Strapping Pins

- MTDI/GPIO12: internal pull-down
- GPIO0: internal pull-up
- GPIO2: internal pull-down
- GPIO4: internal pull-down
- MTDO/GPIO15: internal pull-up
- GPIO5: internal pull-up

GPIO pins 12, 13, 14, 15 need to be configured as GPIO at startup, default is JTAG

GPIO pins 14, 15 outputs a PWM at boot

GPIO12 must not be high during boot

GPIO2 and GPIO0 must be either left unconnected/floating, or driven Low, in order to enter the serial bootloader.

GPIO 5 and 15 must be high during boot

* dont connect anything here, connects to the internal Flash memory

Enter boot ESP32

On power ON:

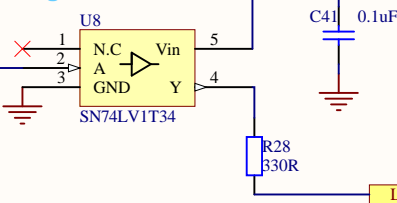
IO0 = LOW

IO2 = LOW (has internal pull down)

IO12: flash voltage Low = 3.3V High = 1.8V (has internal pull down)

IO15: boot messages Low = no msg High = normal output (has internal pull up)

Logic Level Shifter



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project:

CRS RC car

Drawing number: 4

Rev: v.0.0P3

Format:

Laboratory: *

Sheet: ESP32.SchDoc

Date: 02/06/2022 13:13:22

A3

Drawn by: MA

Page 4 of 6

File: C:\Users\Marcus\Documents\ETH\Altium SVN\CRS RC car v00P3\ESP32.SchDoc

1

2

3

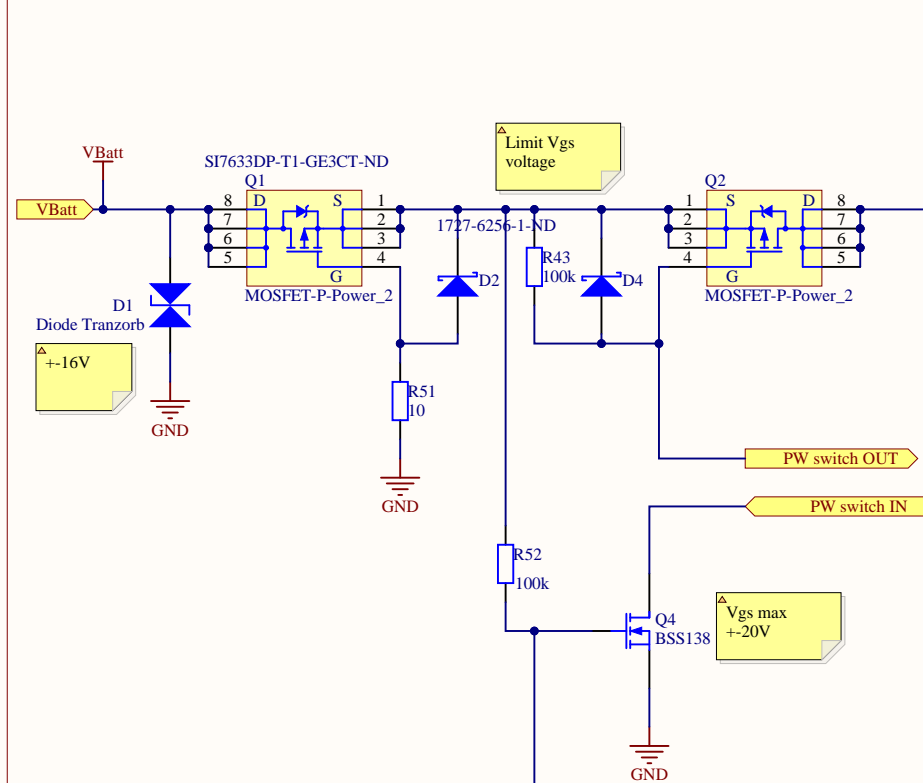
4

5

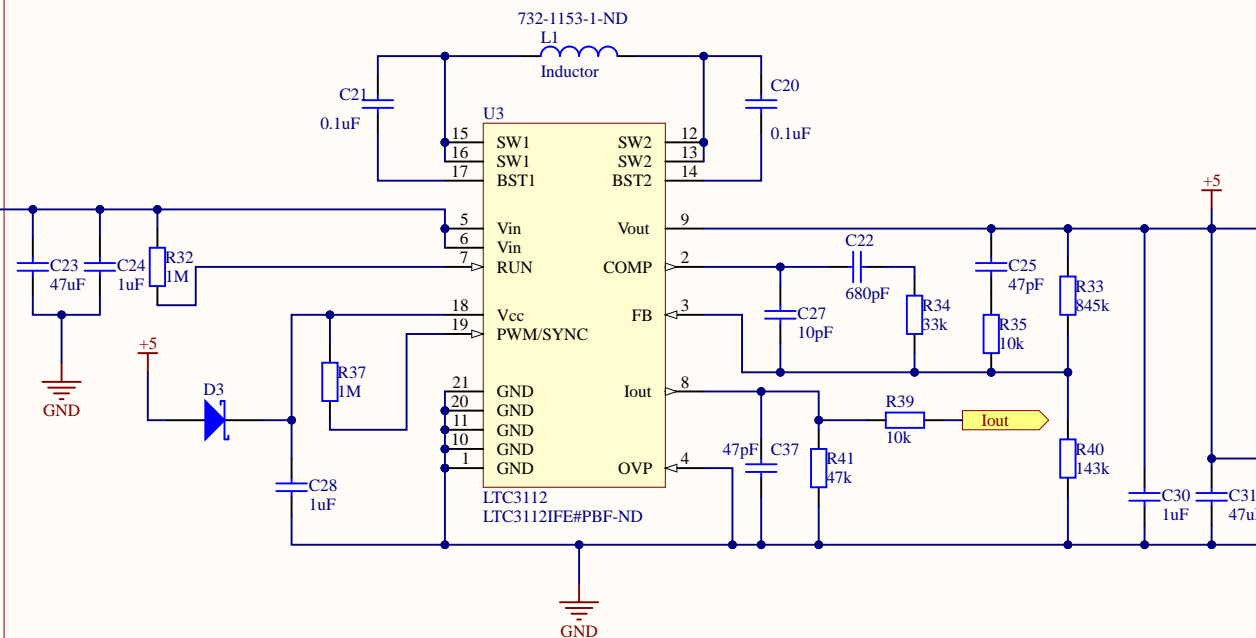
6

7

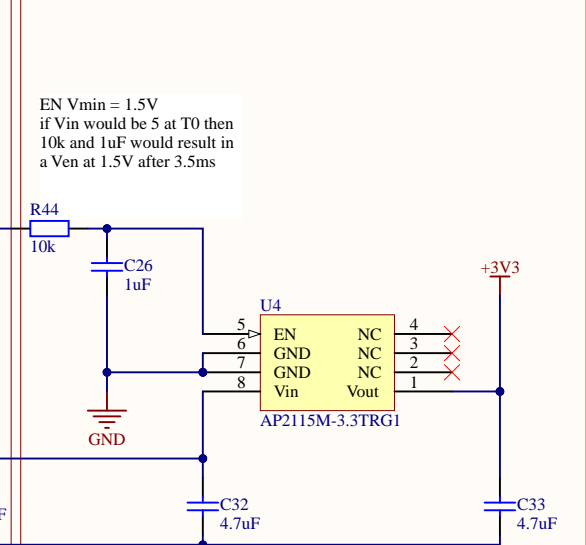
8



Buck/Boost converter

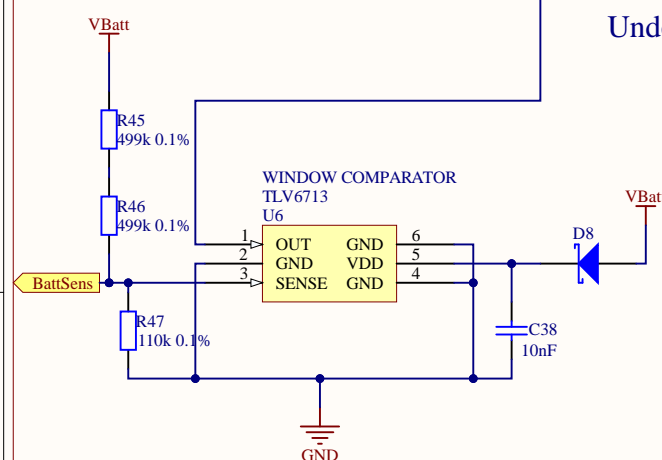


LDO



EN Vmin = 1.5V
if Vin would be 5 at T0 then
10k and 1uF would result in
a Ven at 1.5V after 3.5ms

Under voltage protection



Res	Ohm	Voltage
R1	499	1,81
R2	499	1,81
R3	110	0,4001

