

A

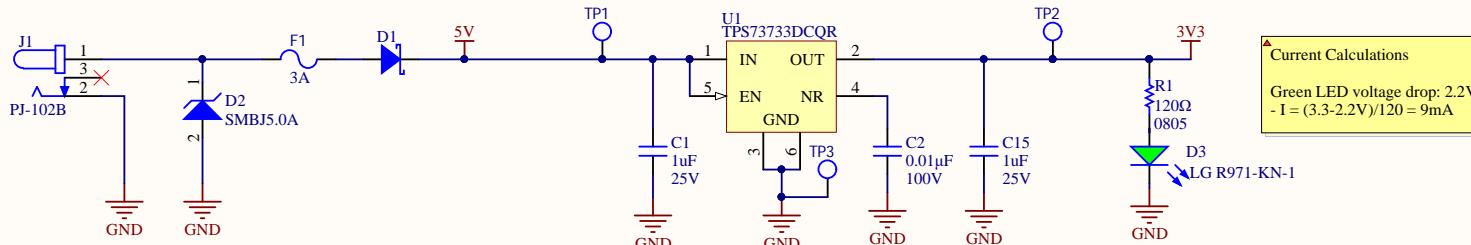
A

B

B

Power In

5V to 3V3 LDO



C

C

D

D

Title: RC GimbalDrive - Power

Size: Letter | Drawn By: Christopher Arjune

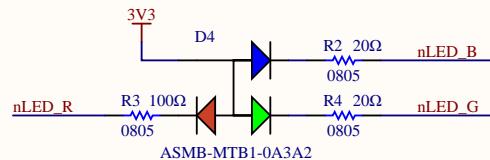
Date: 2020-11-11

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File: C:\Users\pkmn0\Desktop\Document Archive\Other\Electrical Git Repo\MarsRover2020-PCB\Projects\Robot Controller\



RGB LED

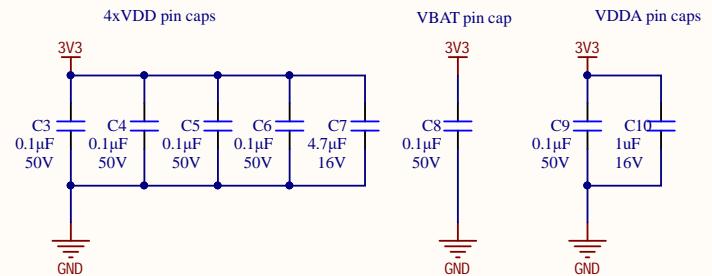


Current Calculations

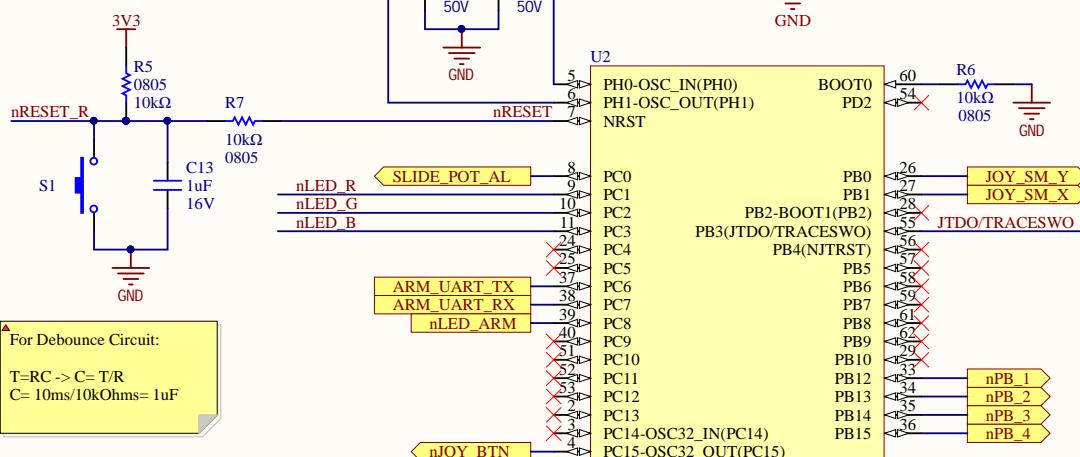
RGB LED voltage drops:

- Red: 2.1V: $I = (3.3-2.1V)/100 = 12mA$
- Blue: 3.1V: $I = (3.3-3.1V)/20 = 10mA$
- Green: 3.1V: $I = (3.3-3.1V)/20 = 10mA$

Decoupling Caps

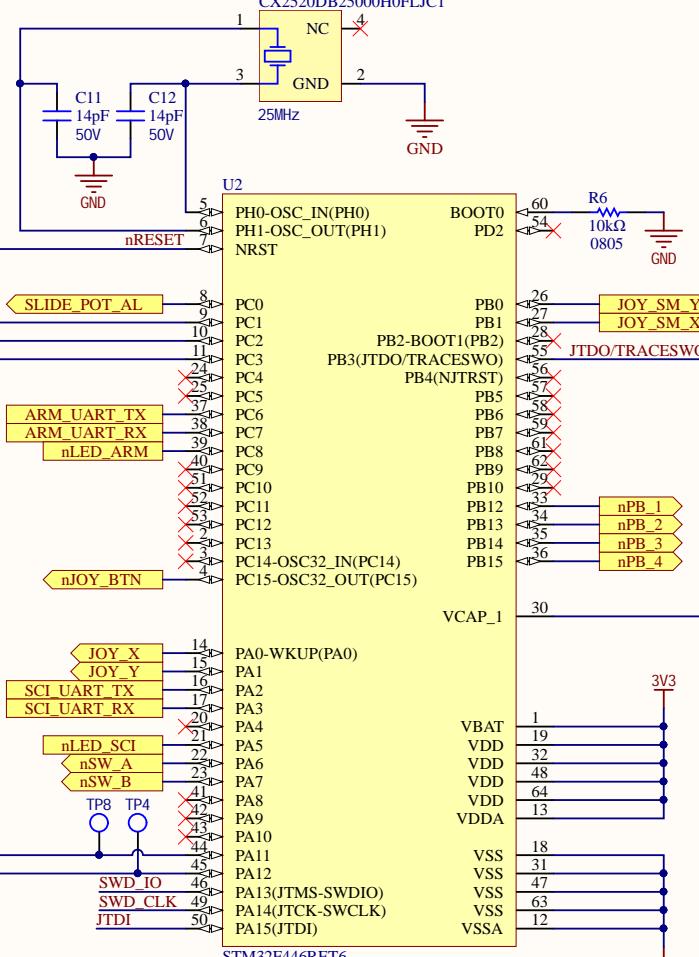


Reset Button

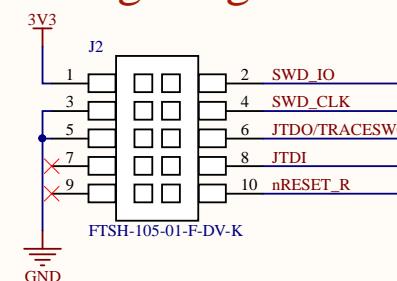


For Debounce Circuit:
 $T=RC \rightarrow C = T/R$
 $C = 10ms/10k\Omega = 1\mu F$

STM32F446RET6



Debug/Programming



A

A

B

B

C

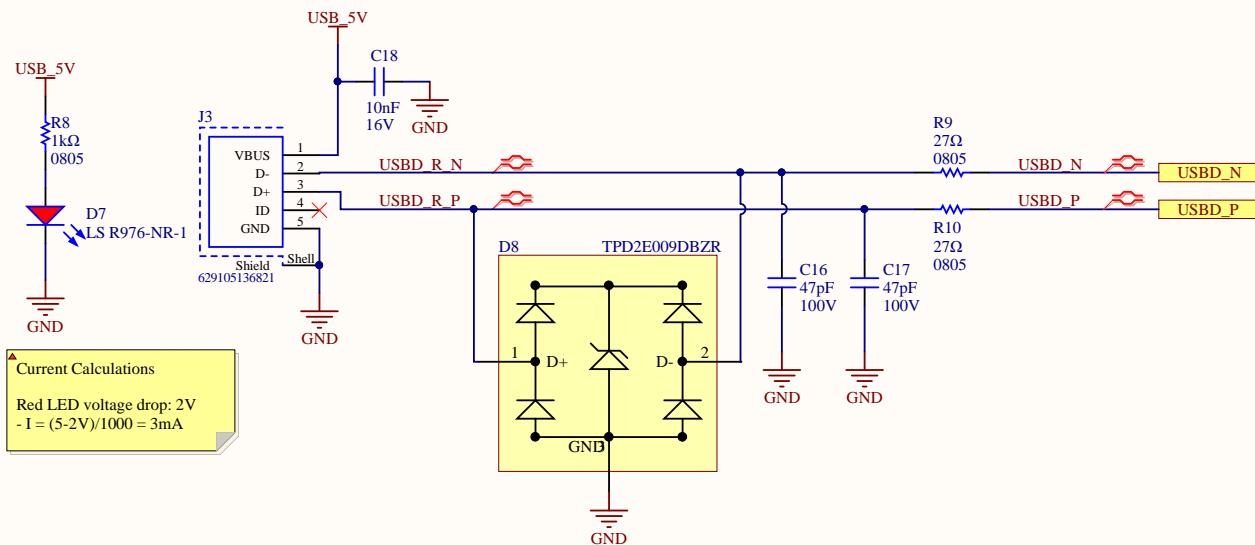
C

D

D

A

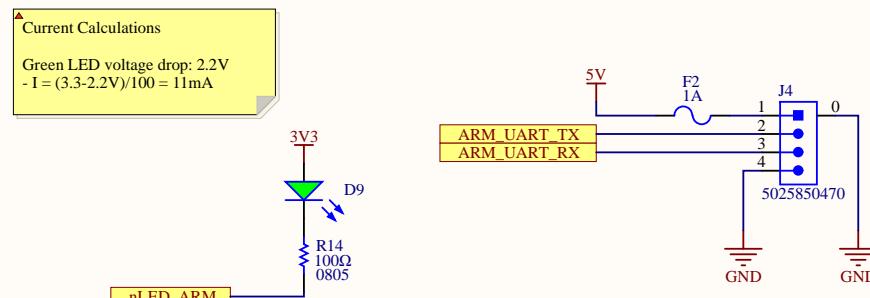
USB Connector



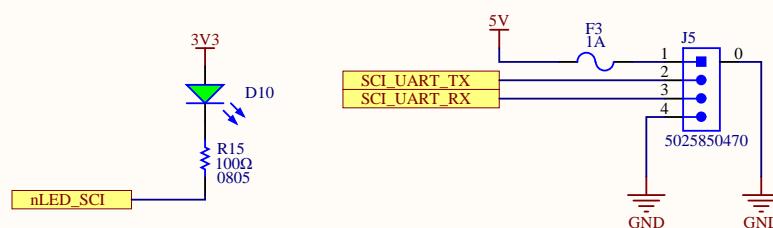
B

C

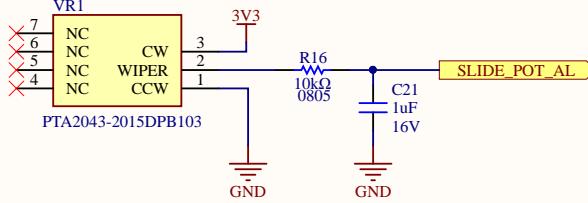
UART Connectors



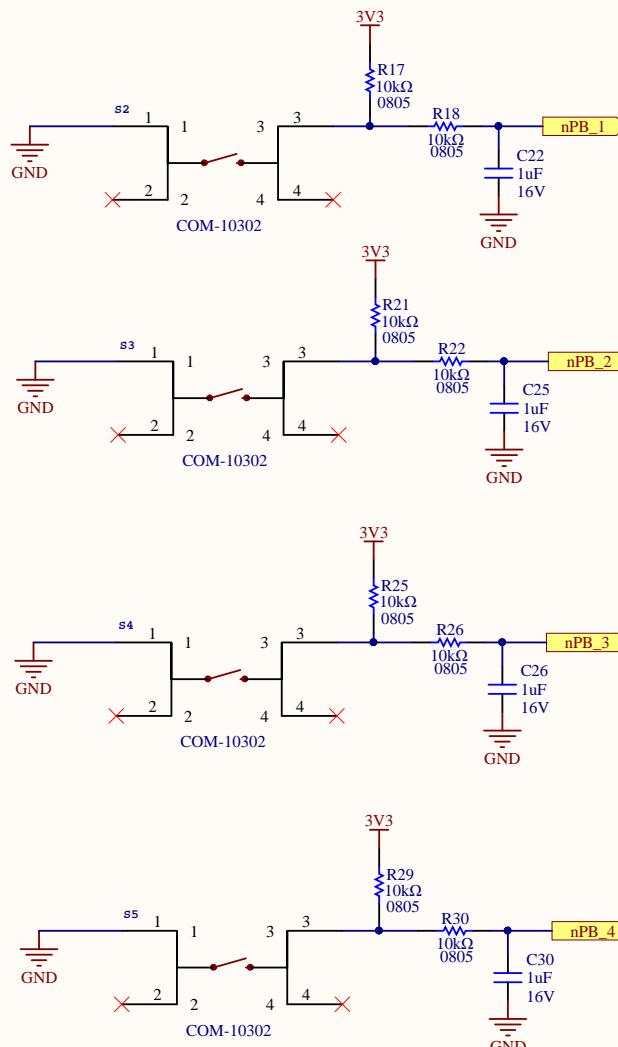
D



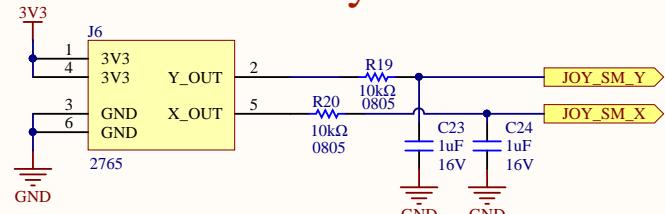
Slide Potentiometer



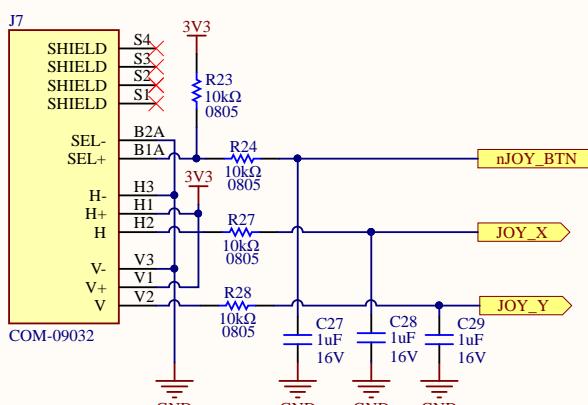
Pushbuttons



2-Axis Joysticks



For Debounce Circuits:
 $T = RC \rightarrow C = T/R$
 $C = 10\text{ms}/10\text{kOhms} = 1\mu\text{F}$



Controls (subject to change)

Joysticks:

- 1: Large joystick is used for driving
- 2: Small joystick is used for gimbal

Potentiometer:

- Used for driving speed control

Switch:

- Used for reverse-mode toggle

Buttons:

- 1: Full-stop (halt all movement immediately)
- 2-4: Extra, in case additional functionality is requested

SPDT Switch

