

A

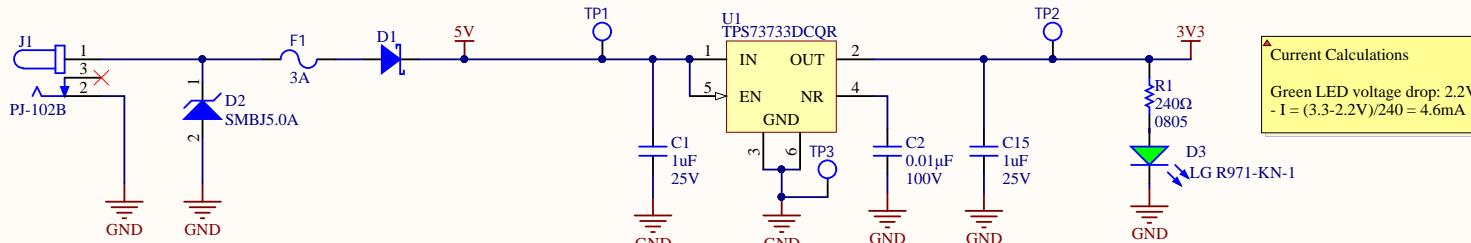
A

B

B

## Power In

## 5V to 3V3 LDO



C

C

D

D

Title: RC GimbalDrive - Power

Size: Letter | Drawn By: Christopher Arjune

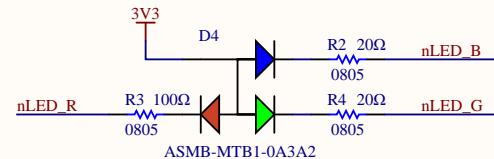
Date: 2020-11-11

Sheet1 of 4

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



## RGB LED

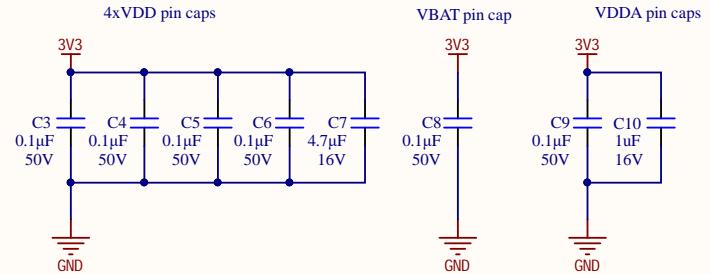


**Current Calculations**

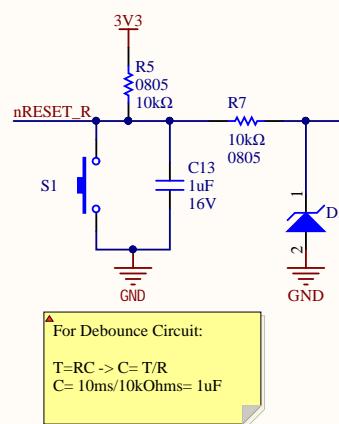
RGB LED voltage drops:

- 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

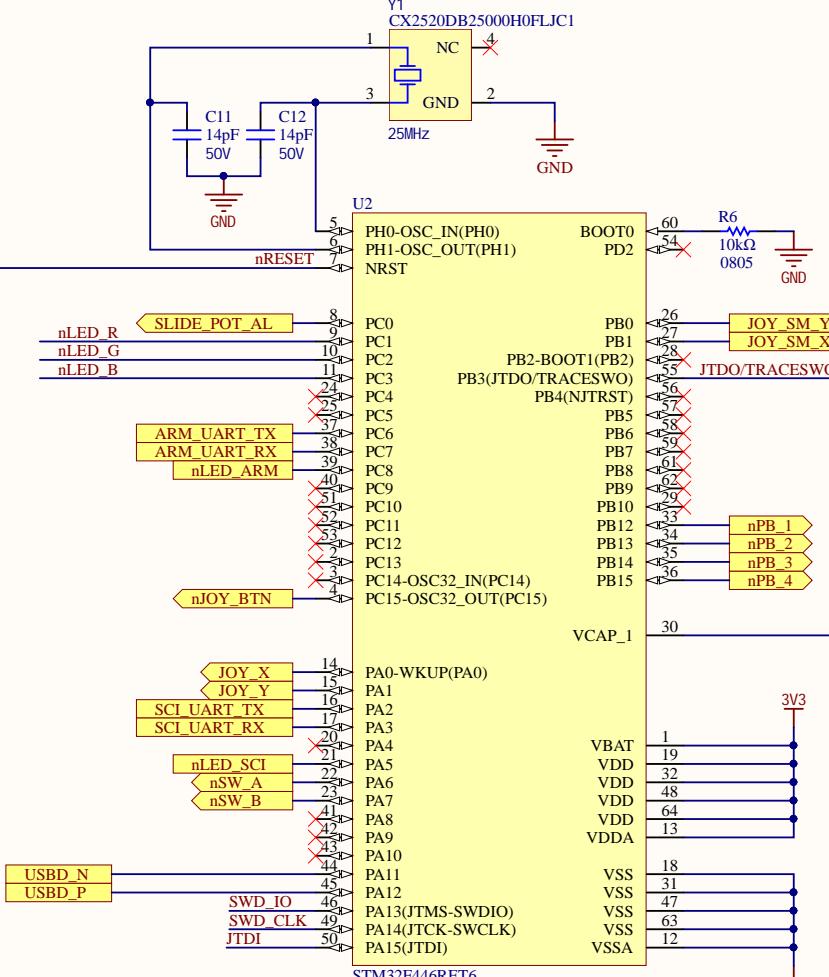


## Reset Button

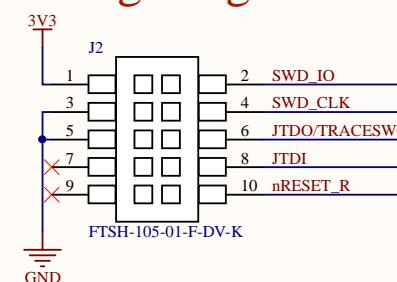


For Debounce Circuit:  
 $T=RC \rightarrow C=T/R$   
 $C = 10ms/10k\Omega = 1\mu F$

## STM32F446RET6



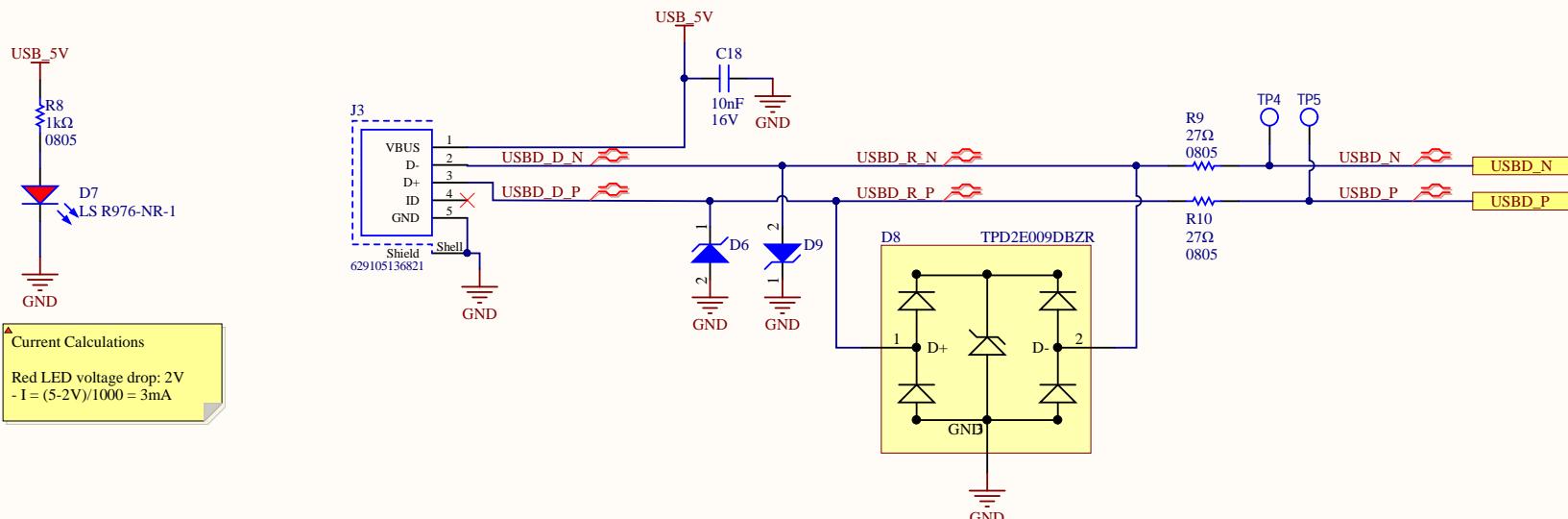
## Debug/Programming



A

A

## USB Connector

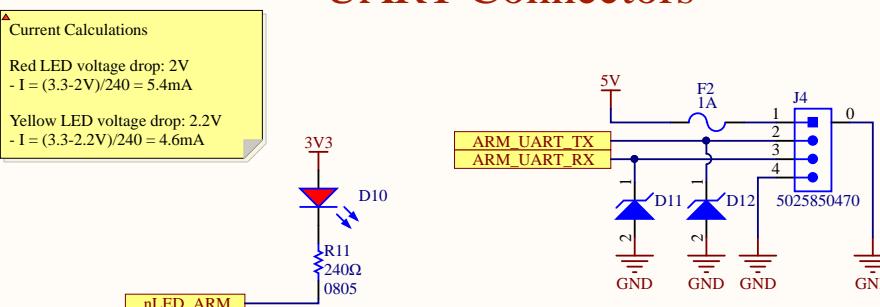


B

B

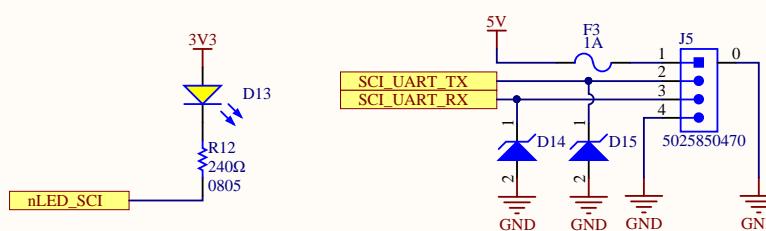
## UART Connectors

C

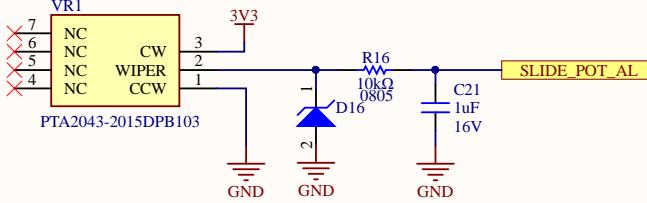


D

D



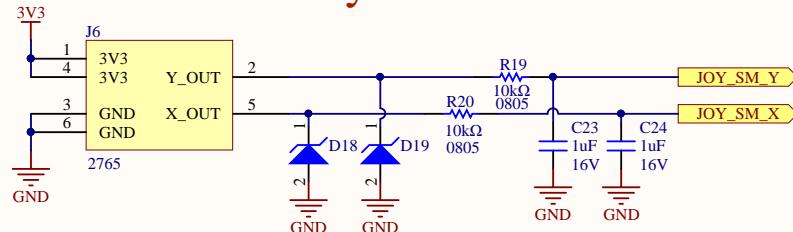
## Slide Potentiometer



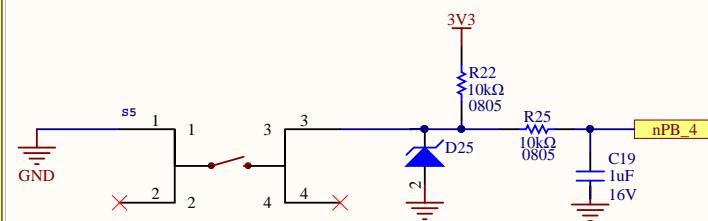
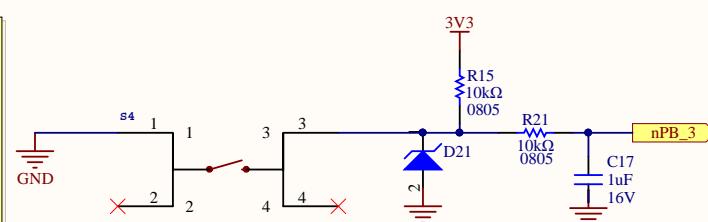
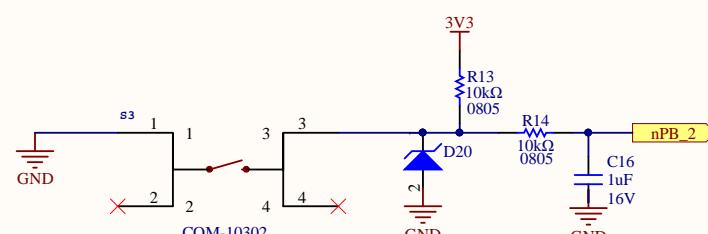
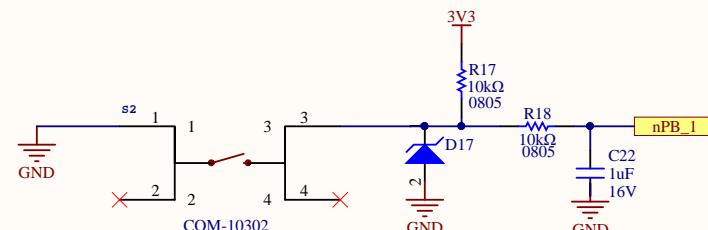
For Debounce Circuits:

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

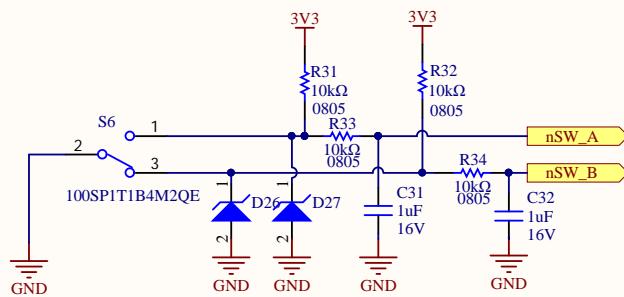
## 2-Axis Joysticks



## Pushbuttons



## SPDT Switch



### 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