

A

A

B

B

C

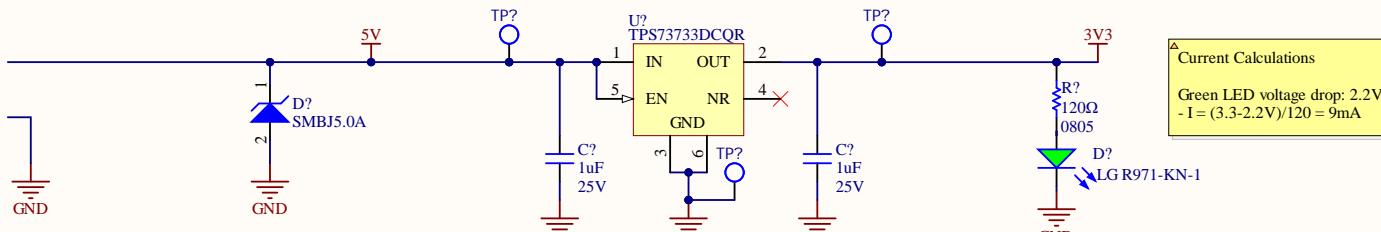
C

D

D

Power In

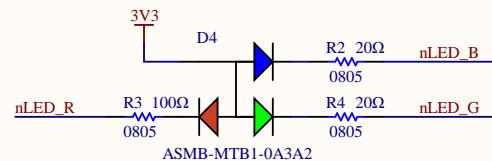
5V to 3V3 LDO



Title: RC GimbdDrive - Power	*
Size: Letter	Drawn By: Christopher Arjune
Date: 2020-11-11	Sheet 1 of 4
File: C:\Users\lance\GitHub\MarsRover2020-PCB\Projects\Robot_Controller\Rev1\GimbdDrive\SH1-POWER.SchDoc	



RGB LED

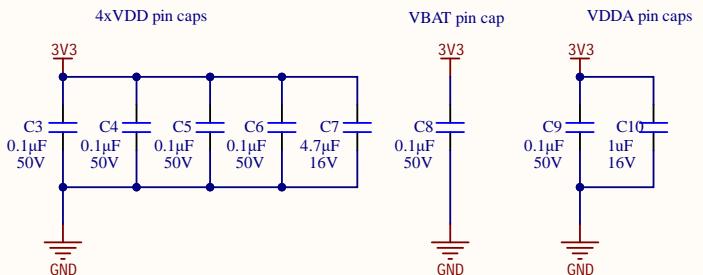


Current Calculations

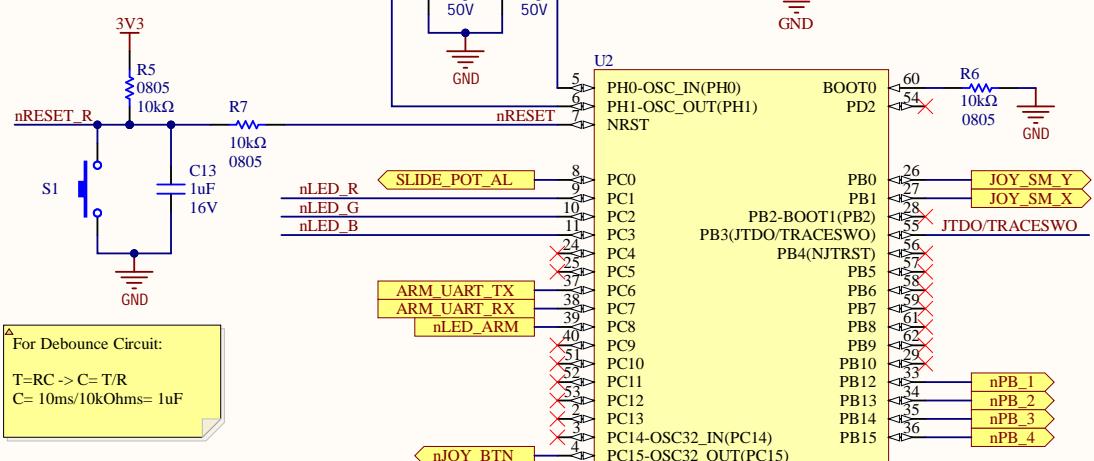
RGB LED voltage drops:

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

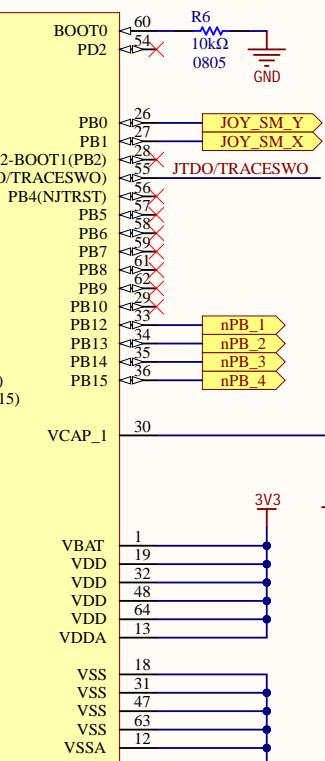
Decoupling Caps



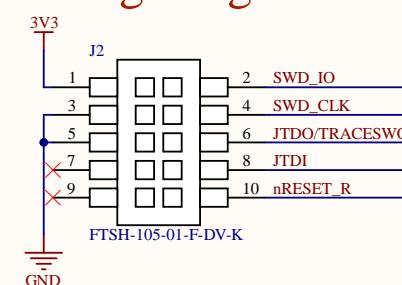
Reset Button



STM32F446RET6



Debug/Programming



USB_USART_TX
USB_USART_RX
USB_USART_CTS
USB_USART_RTS

TP6 TP7 TP8 TP9

MOUNTING_HOLES

TP10 GND

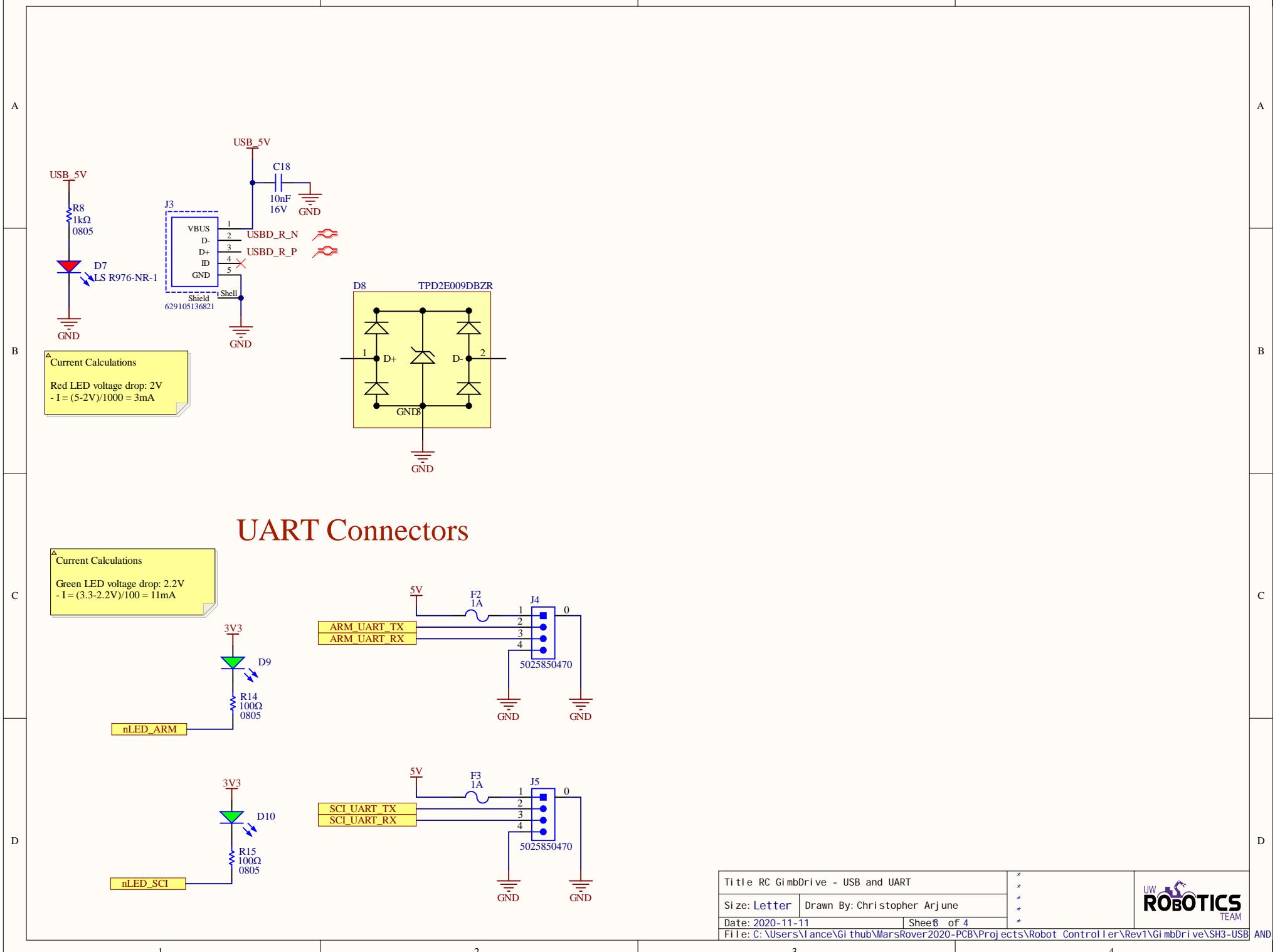
Title RC GimbalDrive - Microcontroller

Size: Letter Drawn By: Christopher Arjune

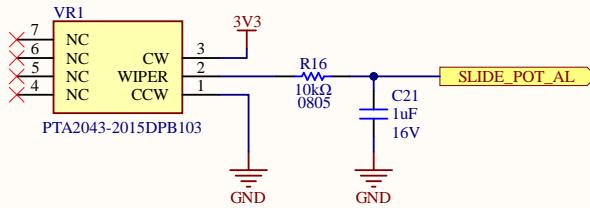
Date: 2020-11-11

File: C:\Users\lance\GitHub\MarsRover2020-PCB\Projects\Robot_Controller\Rev1\GimbalDrive\SH2-MCU

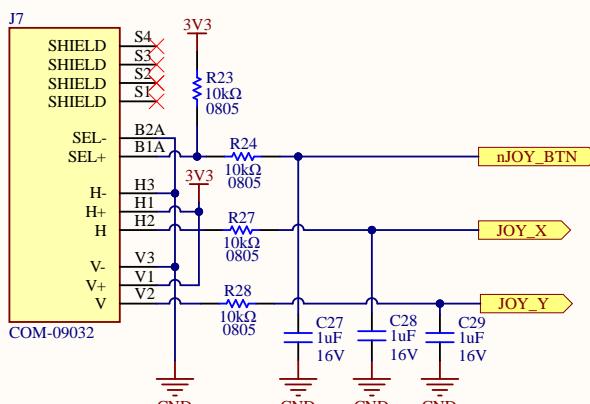
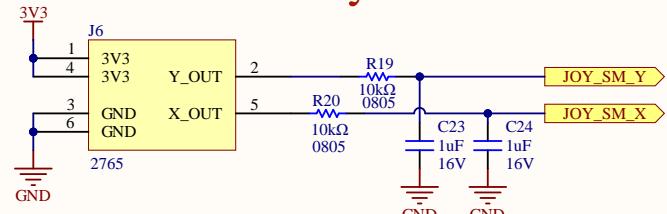
UW ROBOTICS TEAM



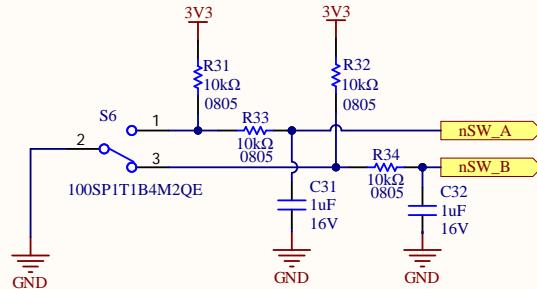
Slide Potentiometer



2-Axis Joysticks



SPDT Switch

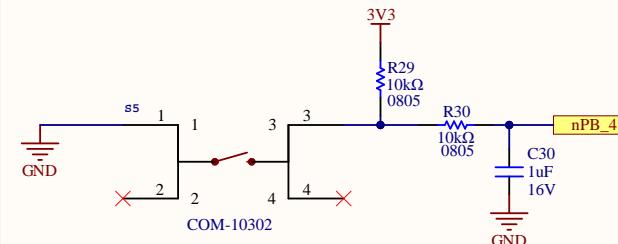
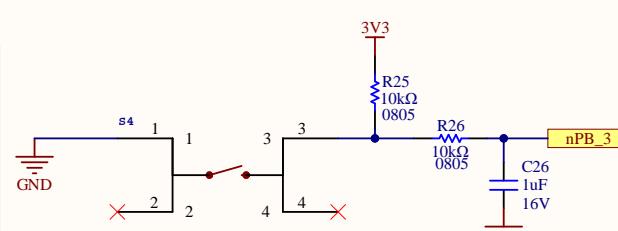
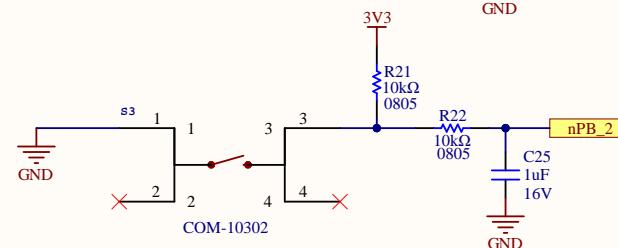
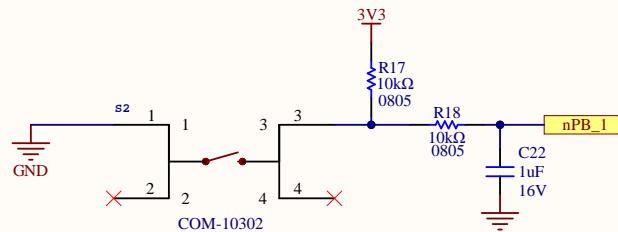


For Debounce Circuits:

$$T=RC \rightarrow C = T/R$$

$$C = 10\text{ms}/10\text{kOhms} = 1\mu\text{F}$$

Pushbuttons



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