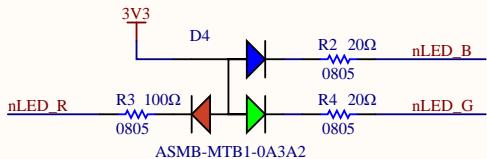


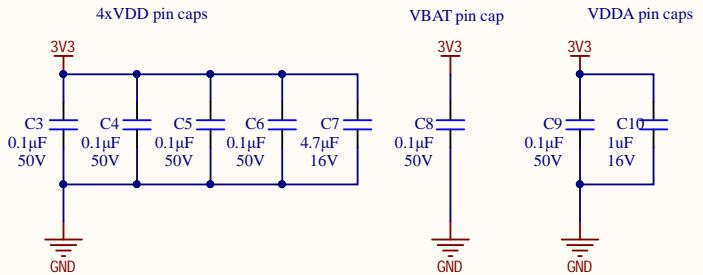
## RGB LED



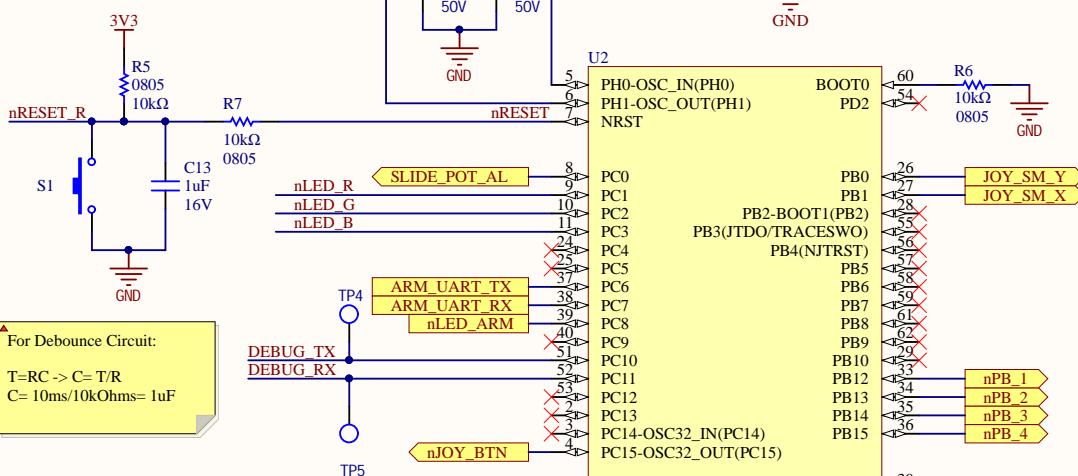
**Current Calculations**

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

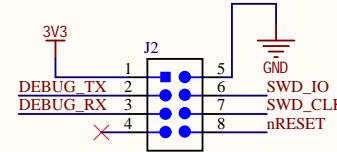


## Reset Button



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

## Debug/Programming



MOUNTING\_HOLES  
TP10  
GND

Title: SH1\_MCU

Size: Letter Drawn By: Qi nyang Bao

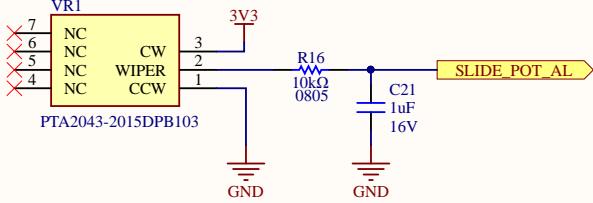
Date: 2020-11-08

Sheet1 of 4

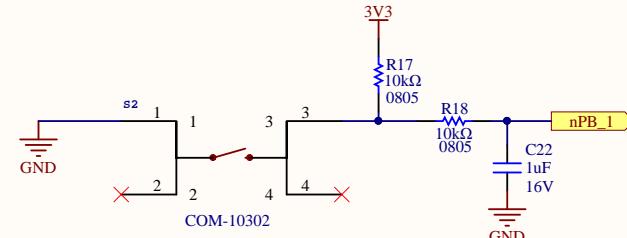
File: C:\Users\pkmn0\Desktop\Document Archive\Other\Electrical Git Repo\MarsRover2020-PCB\Projects\Robot Controller\

UW ROBOTICS TEAM

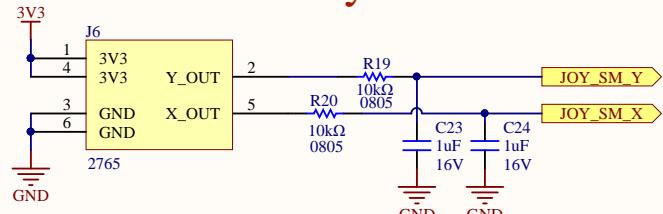
## Slide Potentiometer



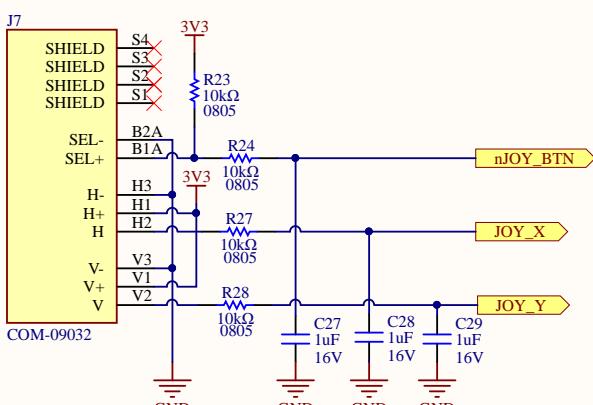
## Pushbuttons



## 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

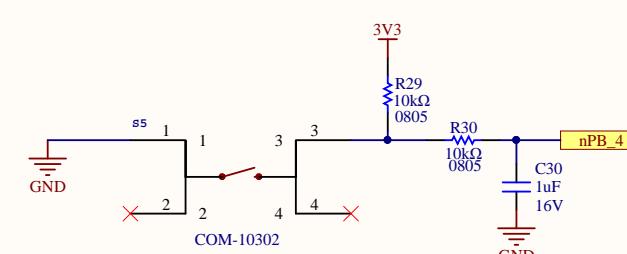
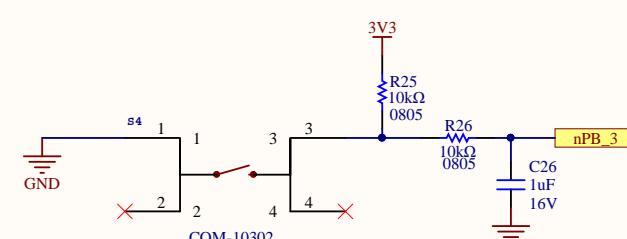
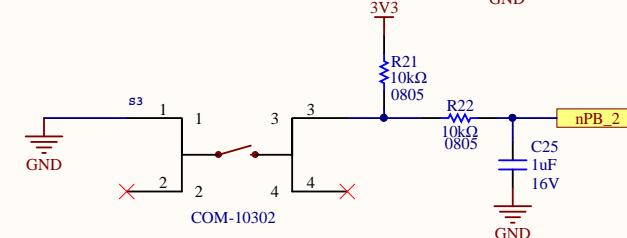
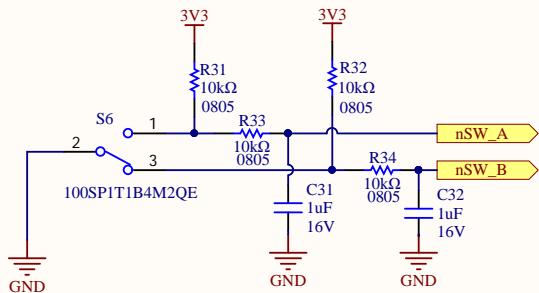
Switch:

- Used for reverse-mode toggle

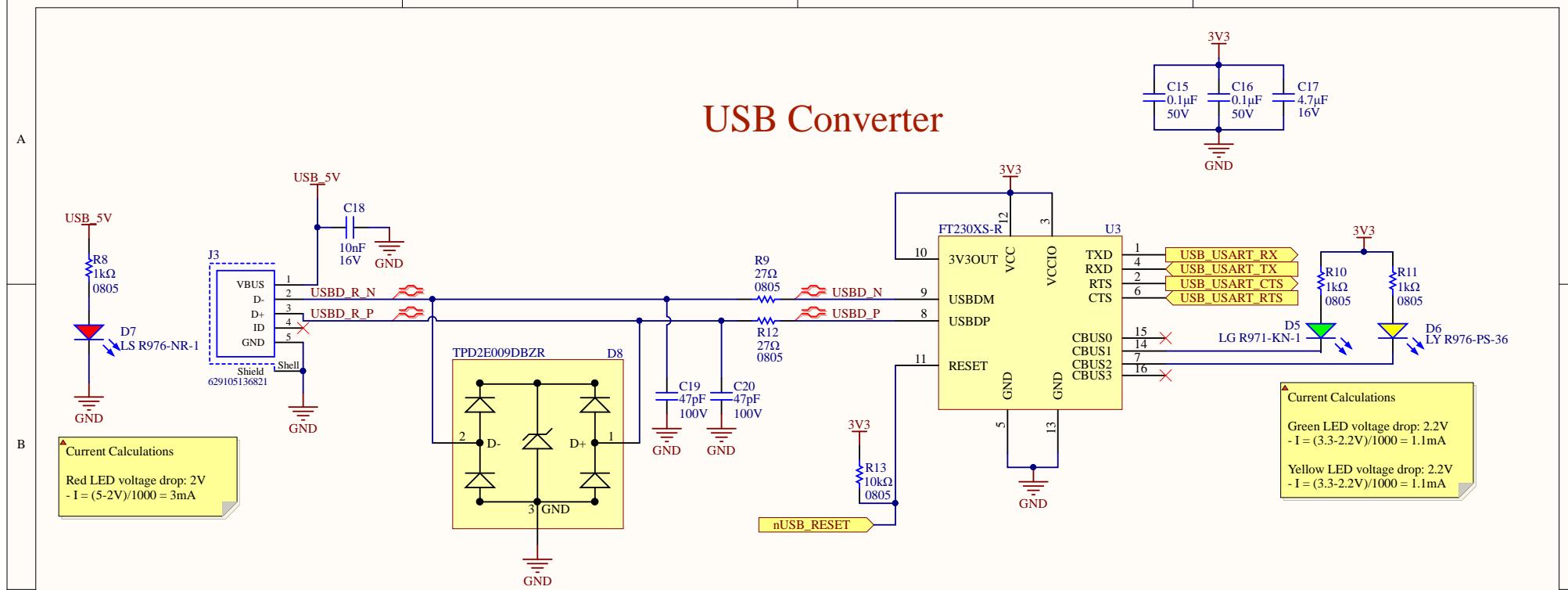
Buttons:

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

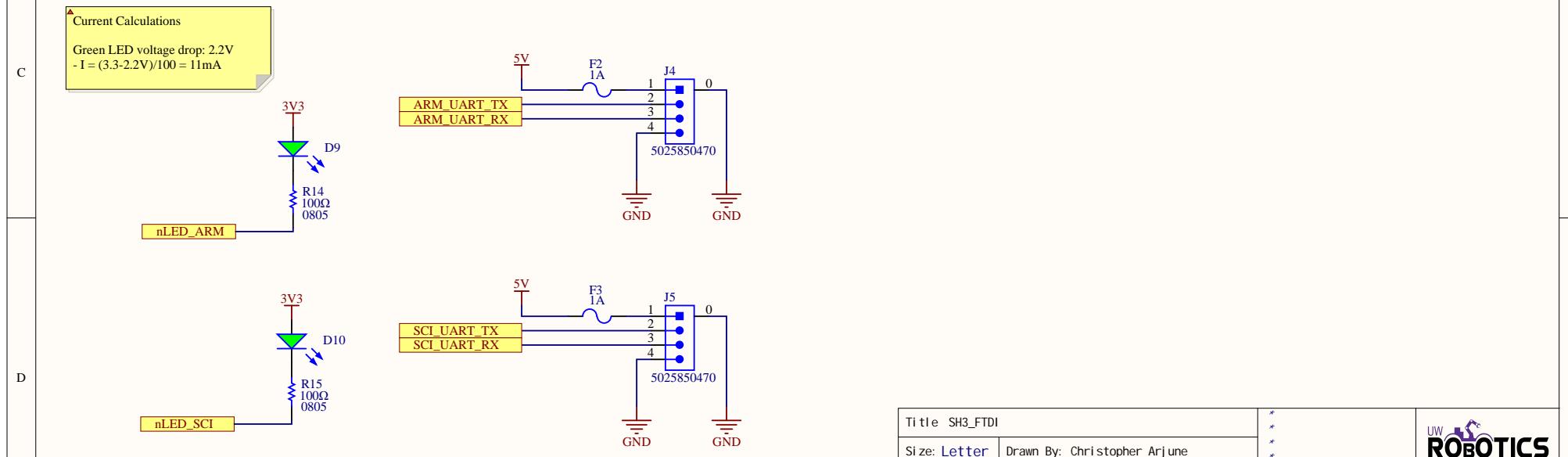
## SPDT Switch



# USB Converter



# UART Connectors



A

A

B

B

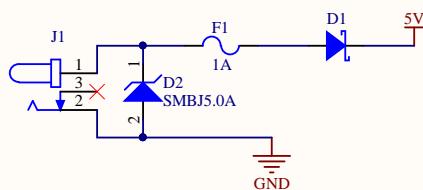
C

C

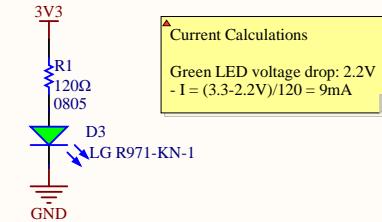
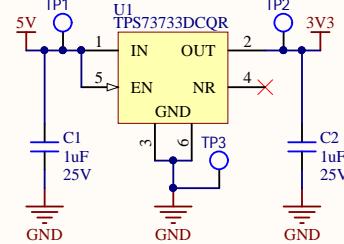
D

D

## Power In



## 5V to 3V3 LDO



Title SH4-POWER

Size: Letter Drawn By: Christopher Arjune

Date: 2020-11-08

Sheet4 of 4

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