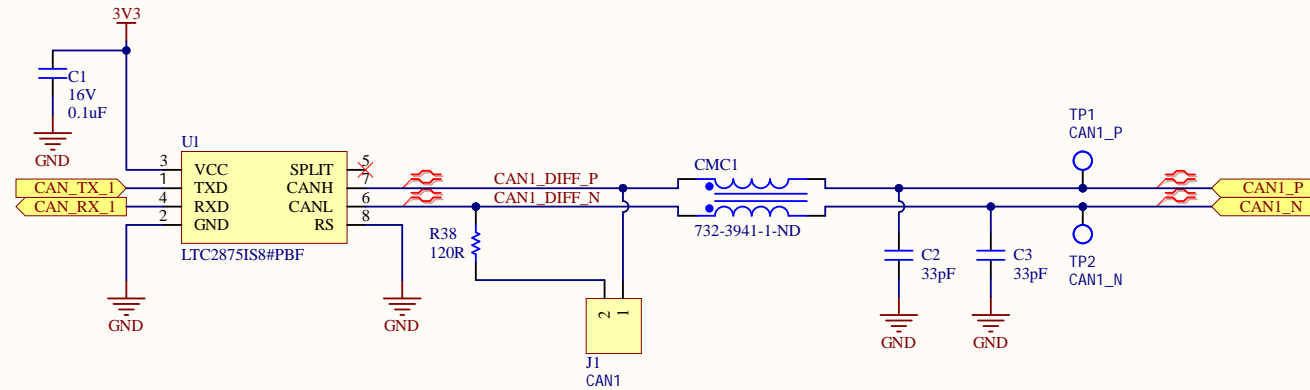
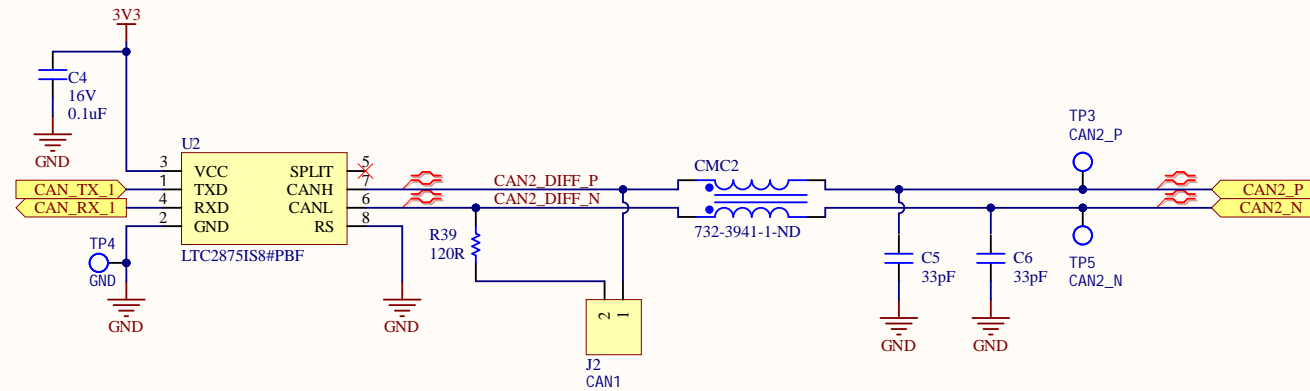


CAN 1




CAN 2

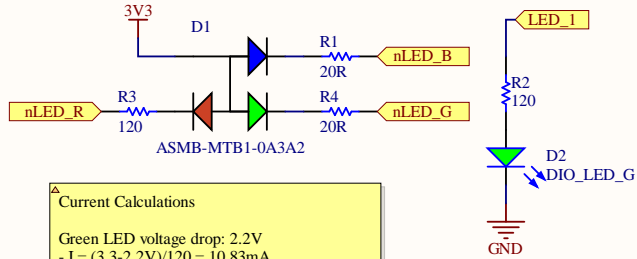


	1	2	3	4
A				
B				
C				
D				
	1	2	3	4

Add XTAL Connector and
 Battery Balancing Connector,
 CAN Connections, Chip
 Programmer connector, DEBUG
 connector

Title Connectors			<i>UW Robotics</i> <i>200 University Avenue</i> <i>Waterloo</i> <i>Ontario</i> <i>Canada N2L 3G6</i>	
Size: Letter	Drawn By: Ayesha Ebrahim			
Date: 2020-05-03	Sheet of			
File: C:\Users\ayesh\Documents\GitHub\MarsRover2020-PCB\Projects\BMS\Rev1\Connectors.SchDoc				

Test LEDs



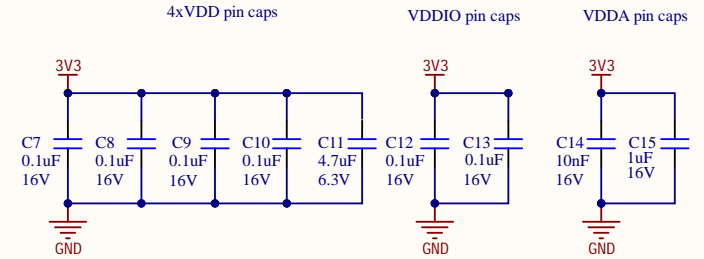
Current Calculations

Green LED voltage drop: 2.2V
 $I = (3.3 - 2.2V) / 120 = 10.83mA$

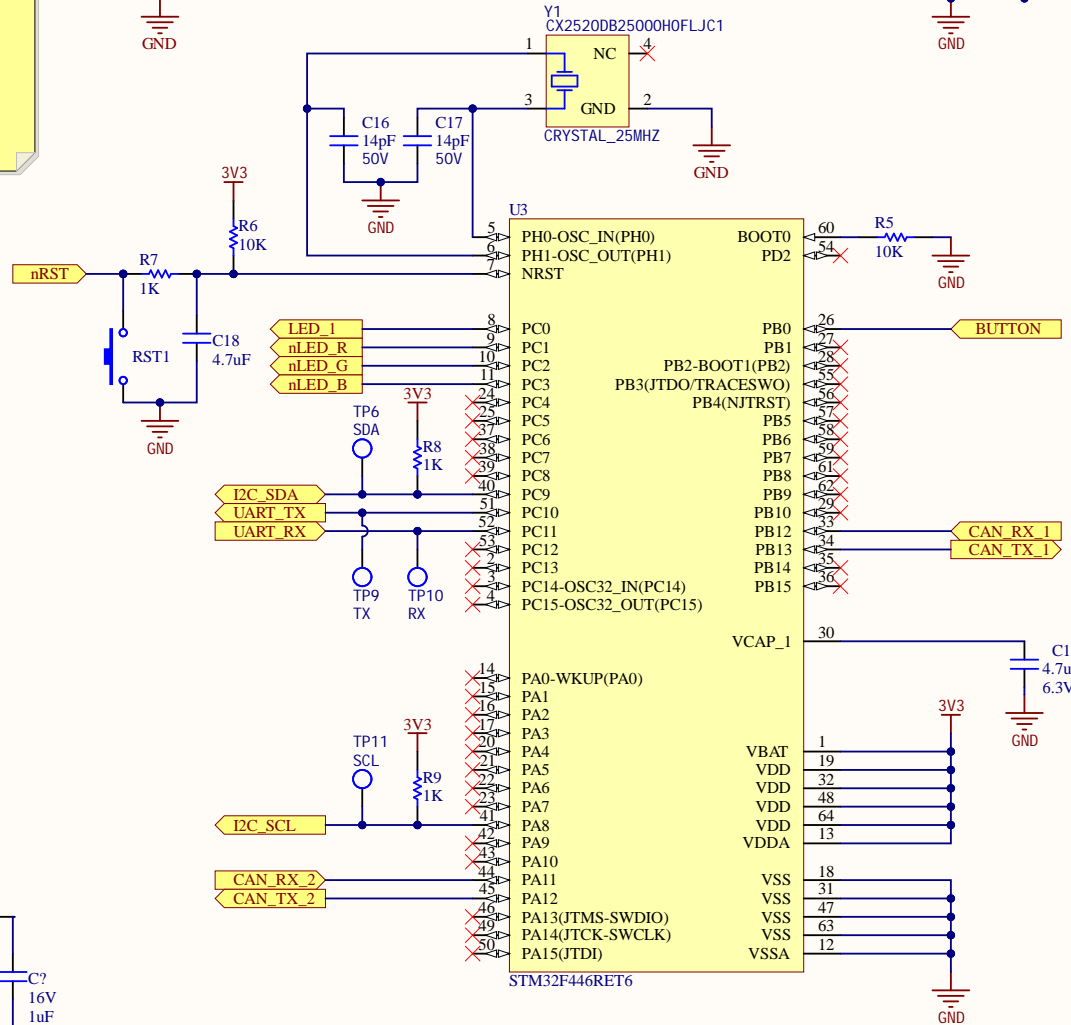
RGB LED voltage drops:

- Red: 2.1V: $I = (3.3 - 2.1V) / 120 = 10mA$
 - Blue: 3.1V: $I = (3.3 - 3.1V) / 20 = 10mA$
 - Green: 3.1V: $I = (3.3 - 3.1V) / 20 = 10mA$

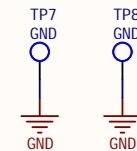
Decoupling Caps



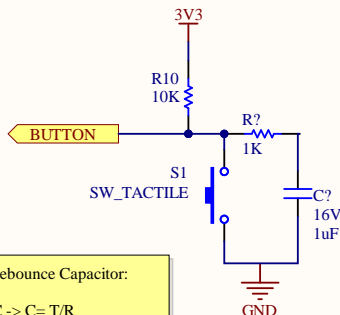
STM32F446RET6



GND Test Points



Test Button



For Debounce Capacitor:

$T = RC \rightarrow C = T/R$
 $C = 0.001ms / 1000Ohms = 1uF$

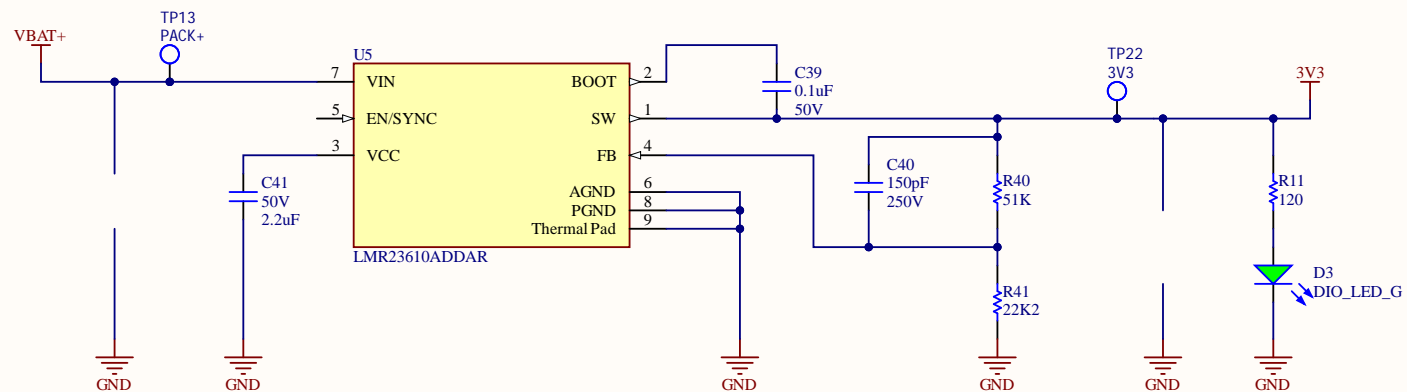
Title	MCU	*
Size:	Letter	*
Drawn By:	Ayesha Ebrahim	*
Date:	2020-05-03	Sheet* of *
File:	C:\Users\ayesh\Documents\GitHub\MarsRover2020-PCB\Projects\BMS\Rev1\MCU_SchDoc	



Regulator Characteristics:
Efficiency...

Battery Voltage to 3V3 Buck @ 1A Max

VBAT is the battery voltage not controlled by the battery manager
VBAT max = 25.2V
VBAT min = 18V (assuming no cells fall below 3V)



Add Caps and inductor

Current Calculations
Green LED voltage drop: 2.2V
- $I = (3.3 - 2.2V) / 120 = 10.83mA$