

A

A

B

B

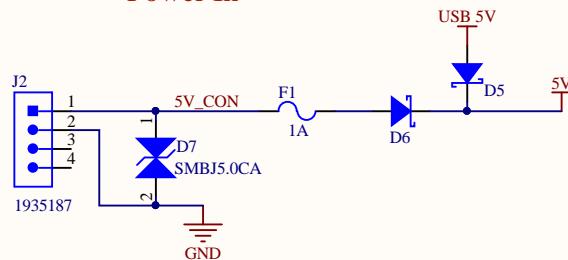
C

C

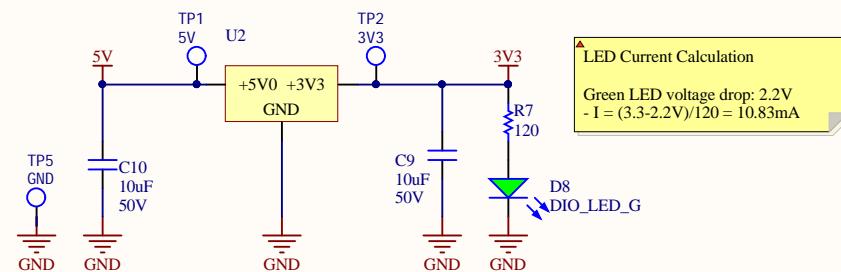
D

D

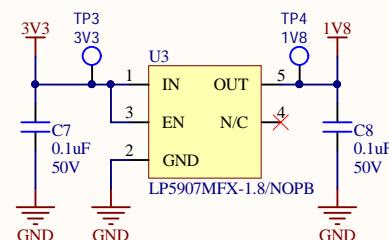
Power In



5V to 3.3V LDO



3.3V to 1.8V LDO



Title Localization

Size: Letter Drawn By: Alaina Hansen, Cindy Li

Date: 5/4/2020

Sheet 1 of 6

File: C:\Users\kyleh\Desktop\Works\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\Power.schDoc

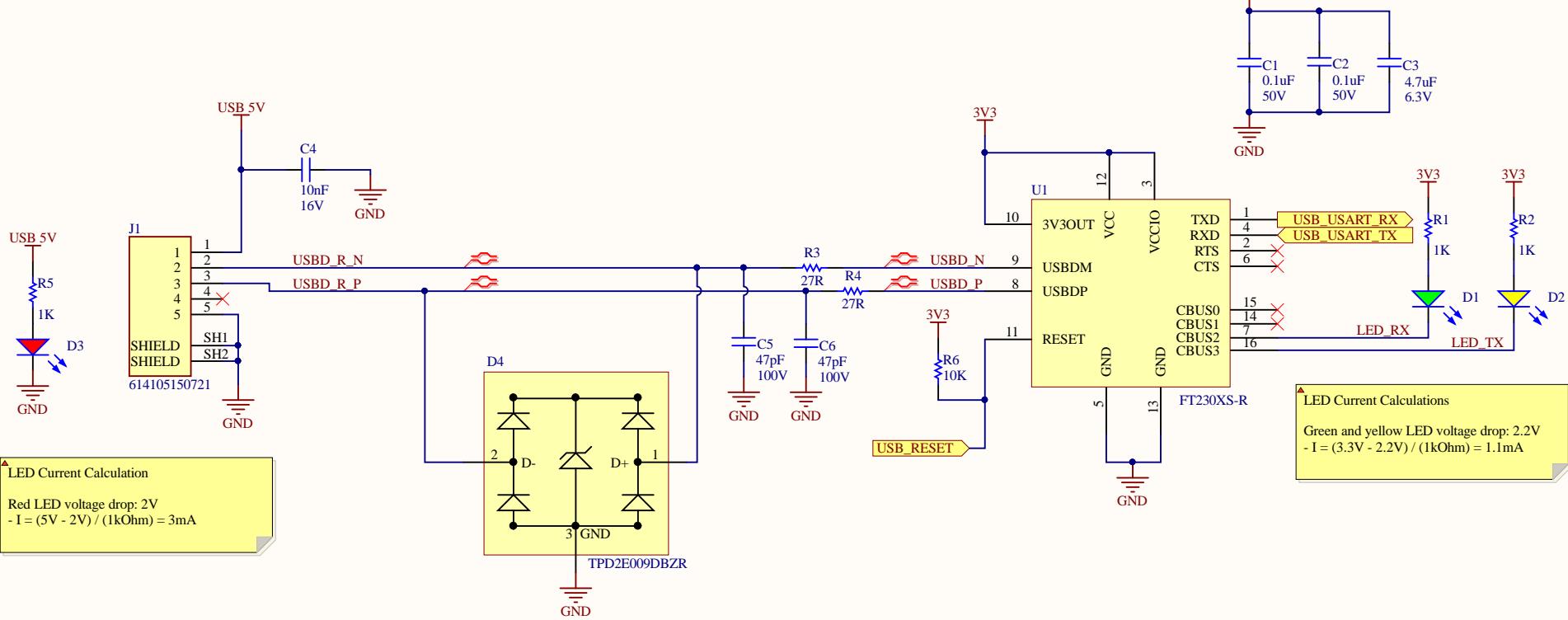
Altium Limited
L3, 12a Rodborough Rd
Frenchs Forest
NSW
Australia 2086



A

A

USB Converter



B

B

C

C

D

D

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Size: Letter | Drawn By: Alaina Hansen, Cindy Li

Date: 5/4/2020

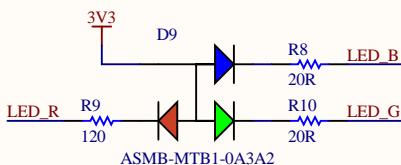
Sheet 2 of 6

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 Frenchs Forest
 NSW
 Australia 2086



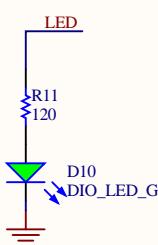
Test LEDs



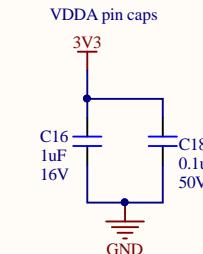
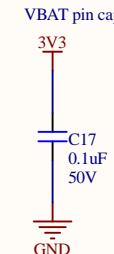
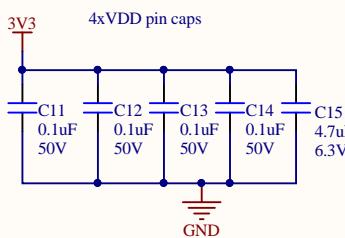
Current Calculations

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

RGB LED voltage drops:
 - Red: 2.1V: $I = (3.3-2.1)/120 = 10\text{mA}$
 - Blue: 3.1V: $I = (3.3-3.1)/20 = 10\text{mA}$
 - Green: 3.1V: $I = (3.3-3.1)/20 = 10\text{mA}$



Decoupling Caps



A

A

B

B

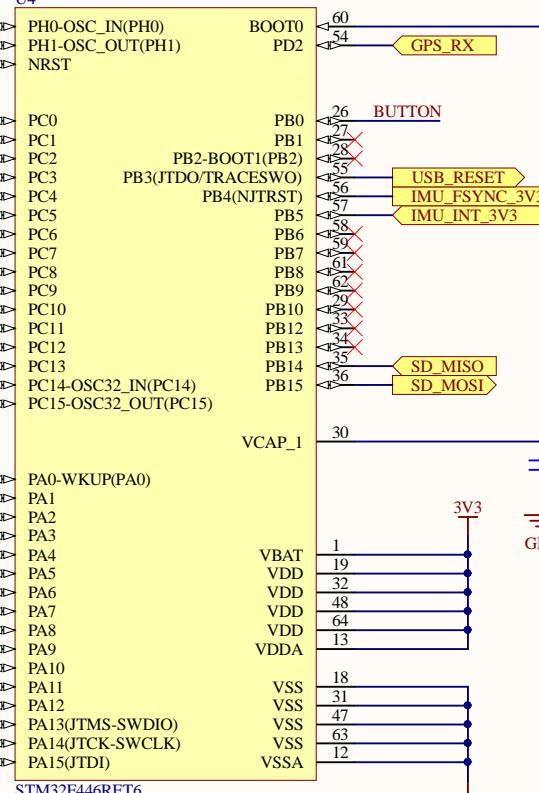
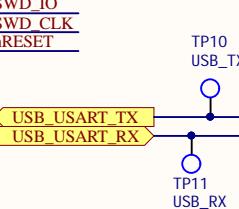
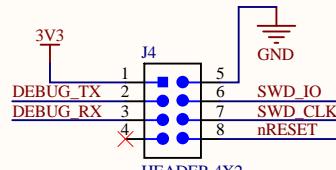
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C

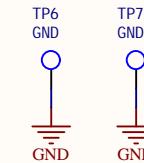
D

D

Debug/Programming

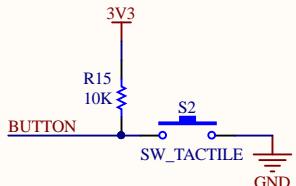


GND Test Points

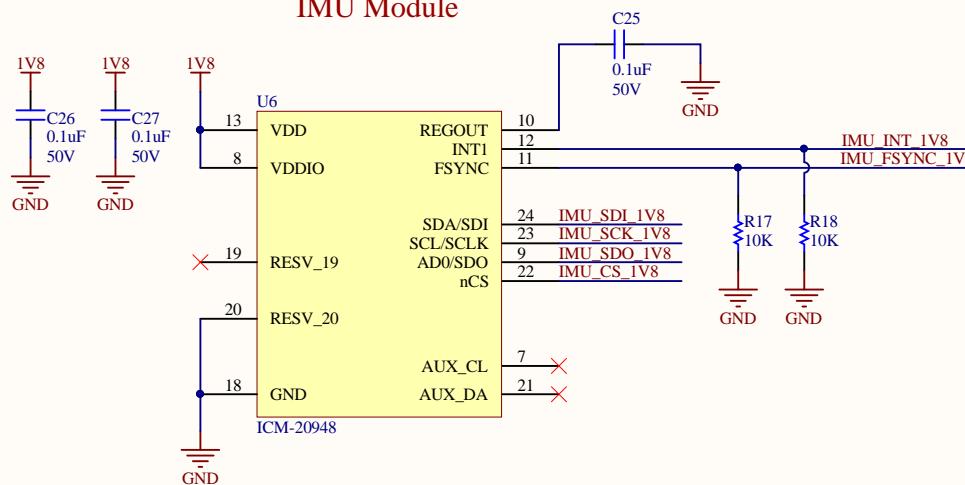


Title Localization		Altium Li Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086
Size: Letter	Drawn By: Alaina Hansen, Cindy Li	
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File: C:\Users\kyleh\Desktop\Works\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\MCU.SchDoc		

Test Button

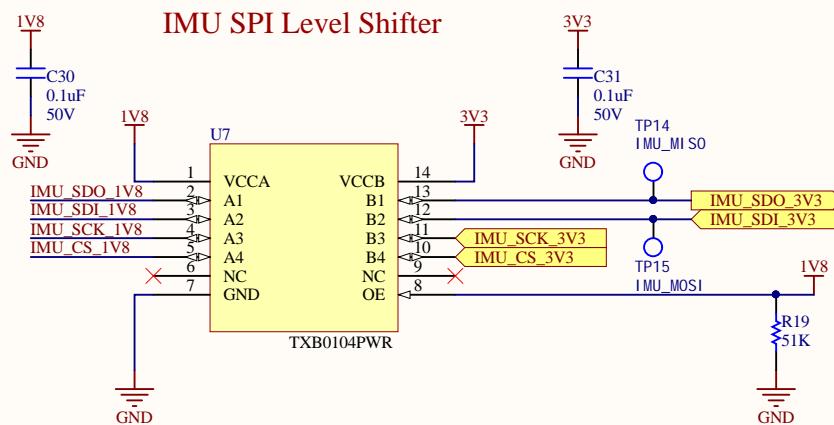


A

IMU Module

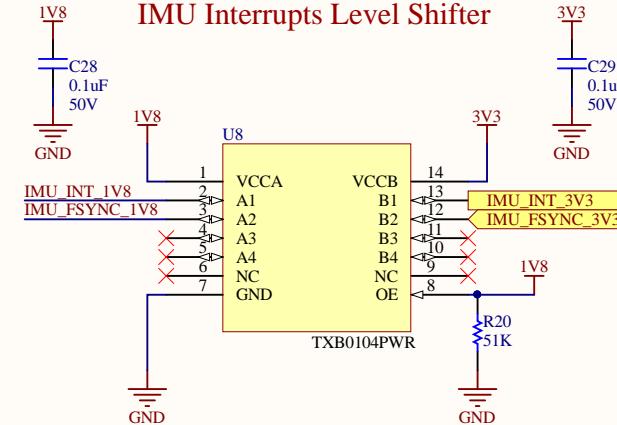
B

A

IMU SPI Level Shifter

C

B

IMU Interrupts Level Shifter

D

C

D

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Date: 5/4/2020

Sheet 4 of 6

File: C:\Users\kyleh\Desktop\Works\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\IMU.SchDoc

A

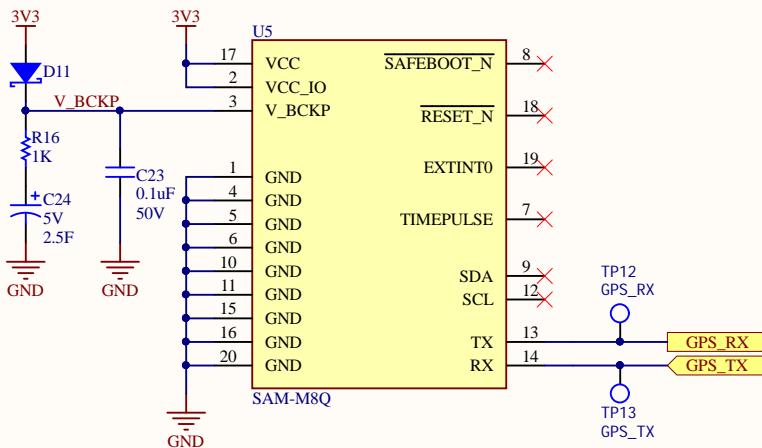
A

RTC Backup Power

GPS Module

B

I



Supercapacitor Calculations

Vcc = 3.3V, Vf = 0.22V, Vmin = 1.4V, I_bkp = 15uA, C = 2.5F
 $t_{b kp} = (2.5F) * (3.3V - 0.22V - 1.4V) / (15uA) = 280,000s = 3.241$ days
 Capacitor tolerance: -0%, +100%

6

6

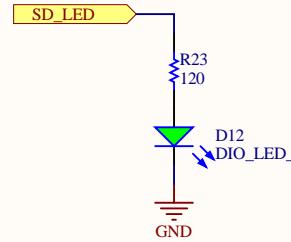
D

I

Title	Localization	<i>Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW</i>	
Size:	Letter	Drawn By: Alaina Hansen, Cindy Li	<i>Australia 2086</i>
Date:	5/4/2020	Sheet 5 of 6	
File:	C:\Users\kyleh\Desktop\Works\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\GPS.SchDoc		

A

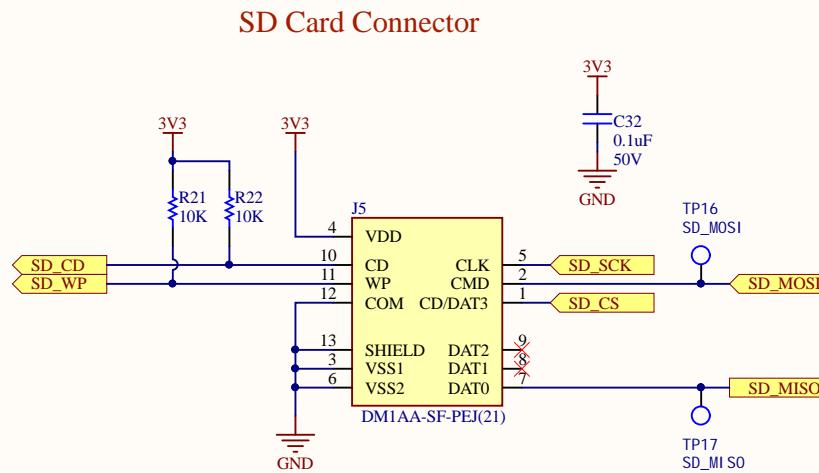
A



LED Current Calculation
 Green LED voltage drop: 2.2V
 $- I = (3.3 - 2.2V) / (120\text{Ohm}) = 10.83\text{mA}$

B

B



C

C

D

D

Title Localization

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Date: 5/4/2020

Sheet 6 of 6

File: C:\Users\kyleh\Desktop\Works\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\SD_CARD.SchDoc

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