

A

A

Mounting Holes

^{H1}
○^{H2}
○^{H3}
○^{H4}
○

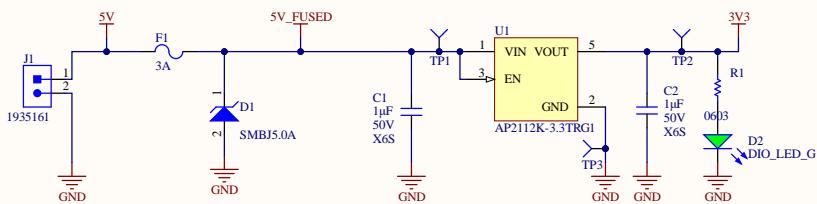
Need to make new mounting hole part depending on Andrew's fastener choice

B

B

Add eFuse for Rev 3

5V to 3.3V LDO (Max 600mA)



Current Calculations

Green LED voltage drop: 2.2V
 $- I = (3.3 - 2.2V)/120 = 9.17mA$

C

C

Title: Power

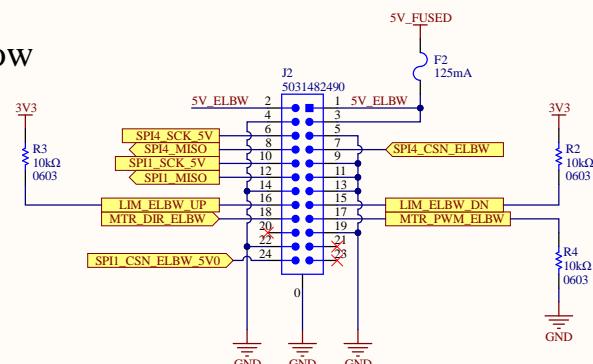
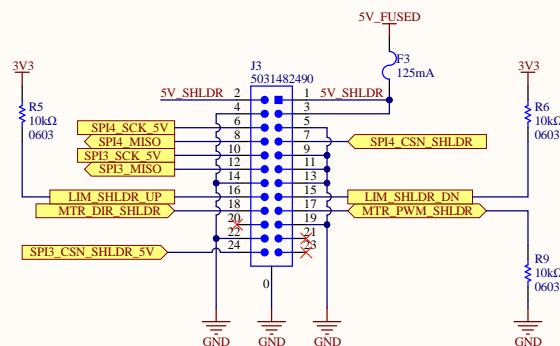
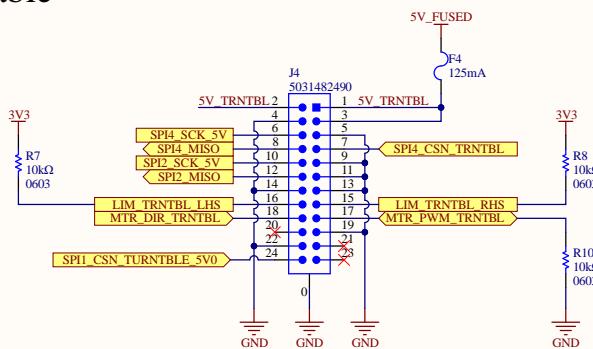
Project: Arm.PjPcb

Rev: 2 Reviewer: Lance Bantoto

Engineer: Kyle Hong

Date: 2/19/2021 Sheet: 1 of 8

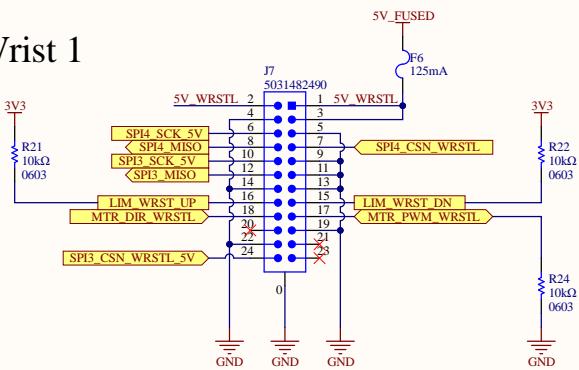
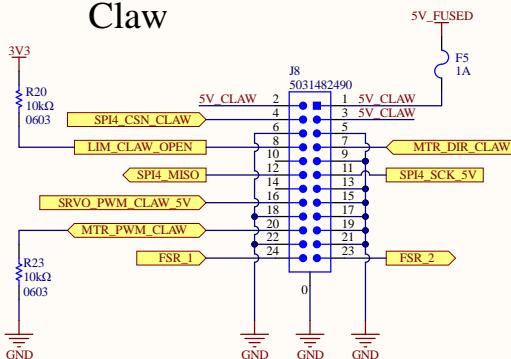
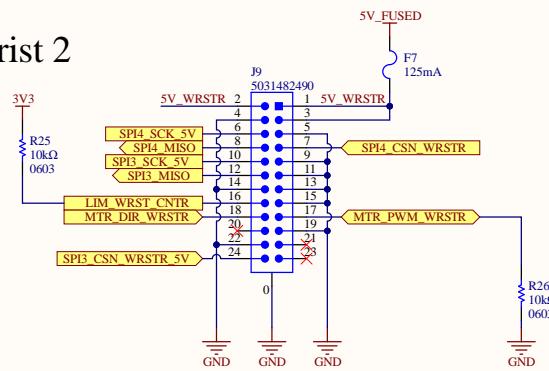
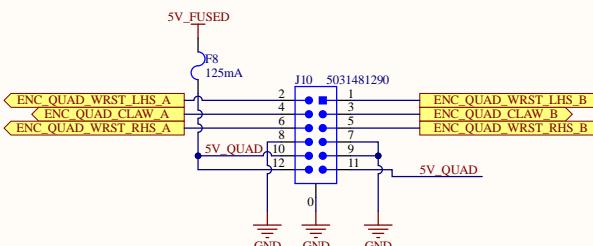


Elbow**Shoulder****Turntable**

Acronyms
 CSN: Chip Select
 MTR: Motor
 ELBW: Elbow
 LIM: Limit Switch
 CLK: Clock
 DN: Down
 FSR: Force Sensitive Resistor
 CLAW: Claw
 WRST: Wrist
 SHLDR: Shoulder
 TRNTBL: Turntable
 DIR: Direction signal for motor controller

Title: Connectors I	
Project:	Arm.PrjPcb
Rev: 2	Reviewer: Lance Bantoto
Engineer: Kyle Hong	Date: 2/19/2021 Sheet: 2 of 8

A

Wrist 1**Claw****Wrist 2****Quadrature Encoders**

Acronyms	
CSN:	Chip Select
MTR:	Motor
ELBW:	Elbow
LIM:	Limit Switch
CLK:	Clock
DN:	Down
FSR:	Force Sensitive Resistor
CLAW:	Claw
WRST:	Wrist
SHLDRL:	Shoulder
TRNTBL:	Turntable
DIR:	Direction signal for motor controller

Title: Connectors 2

Project: Arm.PjPcb

Rev: 2 Reviewer: Lance Bantoto

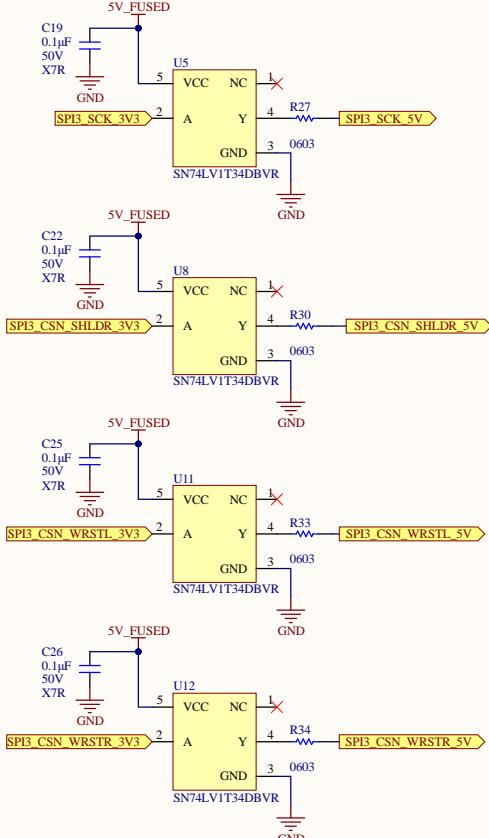
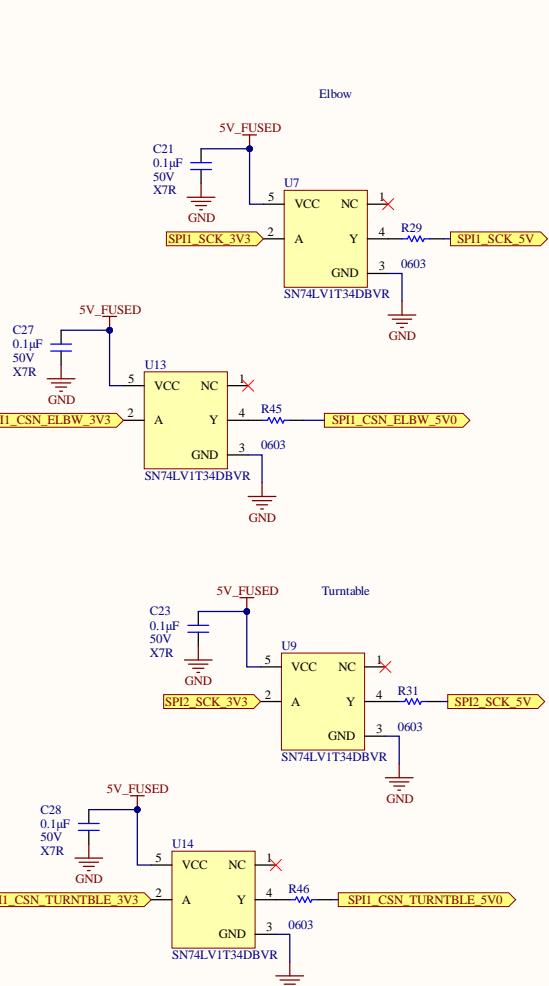
Engineer: Kyle Hong

Date: 2/19/2021 Sheet: 3 of 8

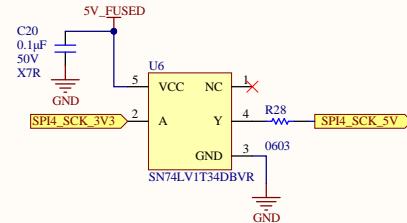
^A
Encoder manufacturer: Broadcom
Encoder part number: AEAT-6012-A06

Did not level shift MISO signals since the STM32 SPI peripheral is 5V tolerant

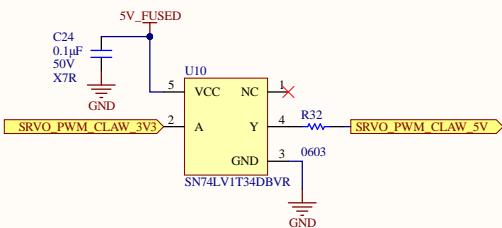
Encoder Level Shifters



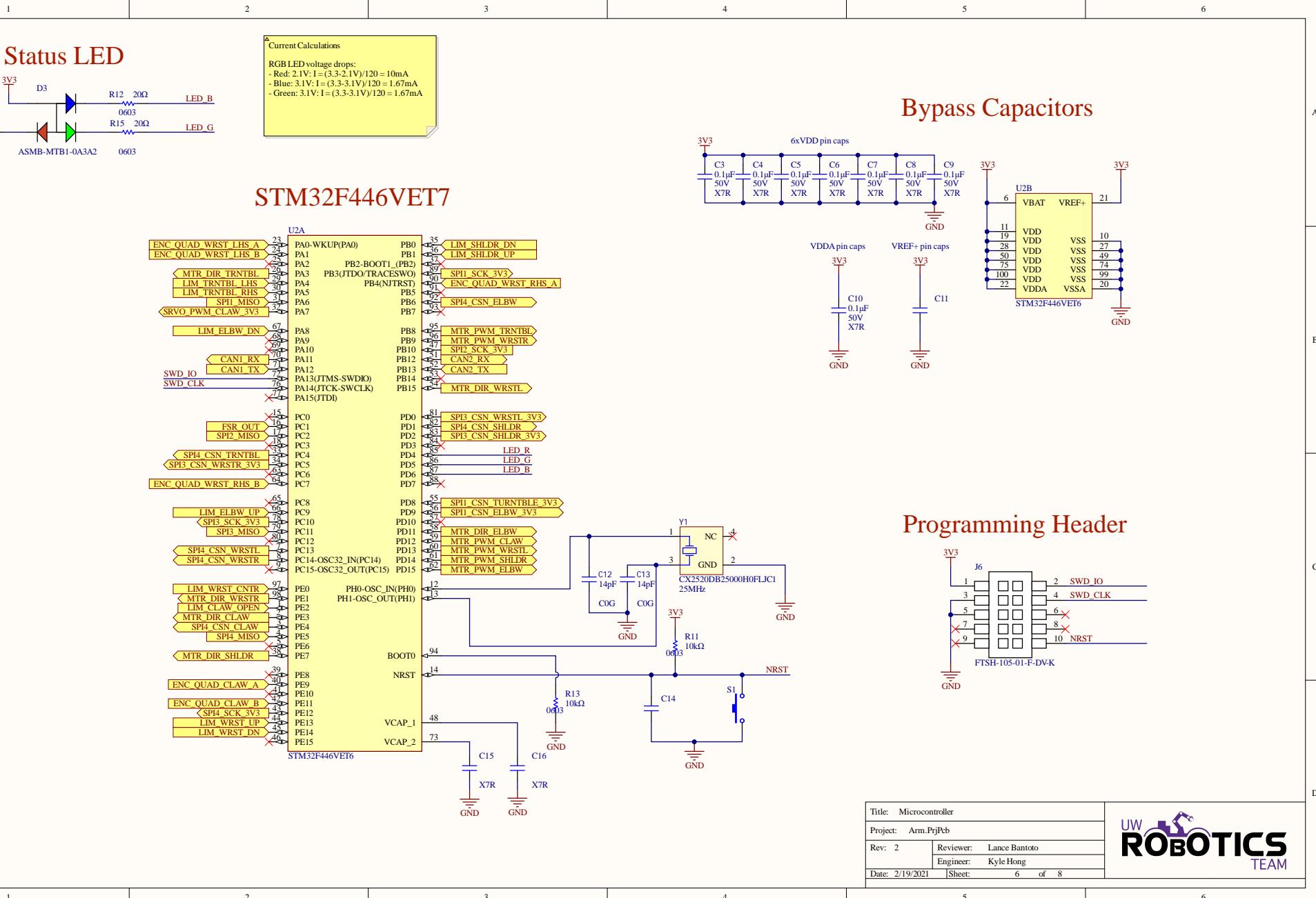
Current Sensor Level Shifter



Servo Level Shifter



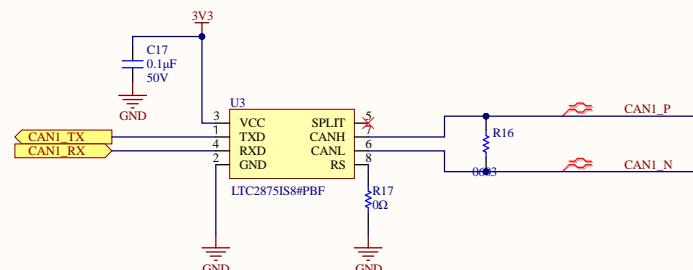
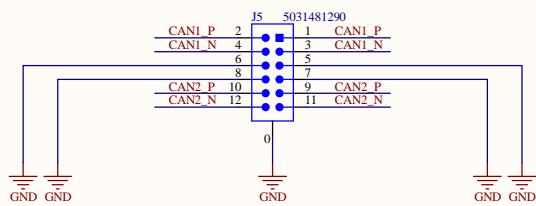
Title: Level Shifters	
Project:	Arm.PjPcb
Rev:	2
Reviewer:	Lance Bantoto
Engineer:	Kyle Hong
Date:	2/19/2021
Sheet:	4 of 8



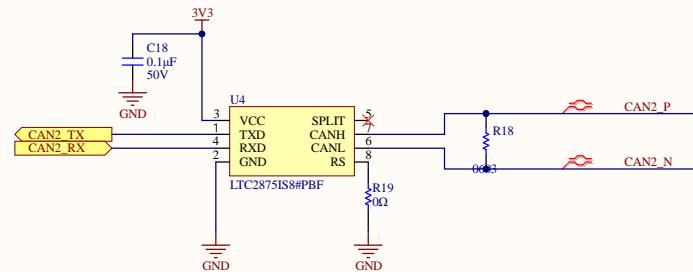
A

CAN Transceivers

B



C



D

Title: CANTranscievers

Project: Arm.PjPcb

Rev: 2 Reviewer: Lance Bantoto

Engineer: Kyle Hong

Date: 2/19/2021 Sheet: 7 of 8



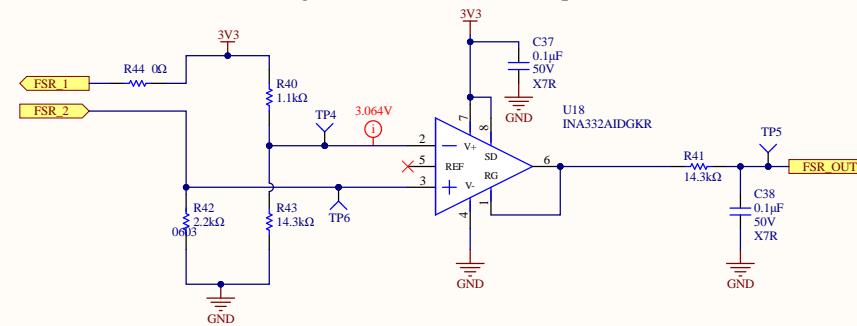
Force Sensitive Resistor

Sensor Manufacturer: Interlink Electronics
 Manufacturer Part Number: 30-81794
 Supplier: Digi-Key
 Supplier Part Number: 1027-1001-ND
<https://cdn.sparkfun.com/assets/8/a/1/2/0/2010-10-26-DataSheet-FSR402-Layout2.pdf>
 Resistance at 20N = 800 ohms
 Resistance at 100N = 250 ohms

Wheatstone bridge voltage output values:
 At 20N, Vout = 3.2V
 At 100N, Vout = 0.5V

Low pass filter cutoff frequency:
 $f_c = 1/(2\pi R C) = 111.30 \text{ Hz}$

Wheatstone Bridge Instrumentation Amplifier (Gain = 5)



Title: Force Sensitive Resistor	
Project: Arm.PjPcb	
Rev: 2	Reviewer: Lance Bantoto
Engineer: *	
Date: 2/19/2021	Sheet: 8 of 8



