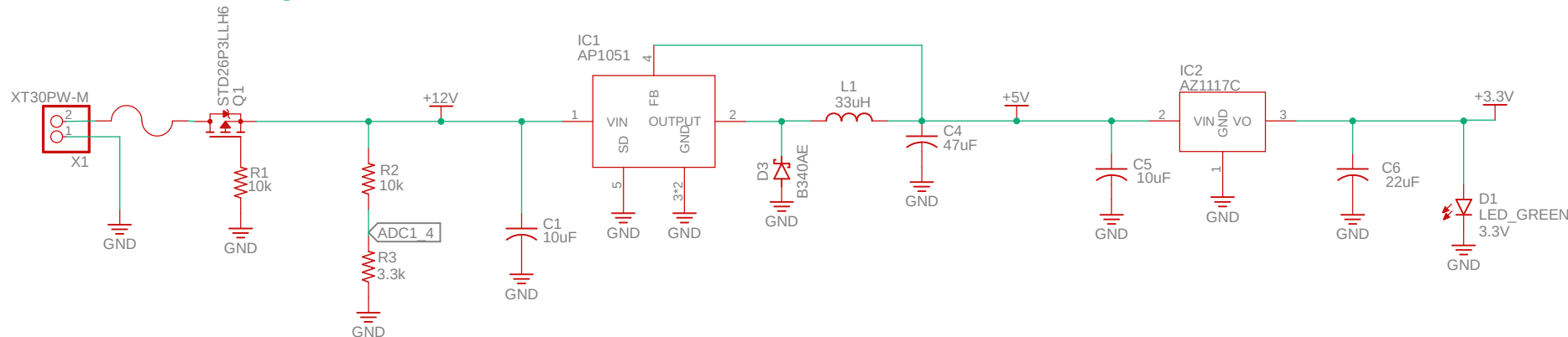
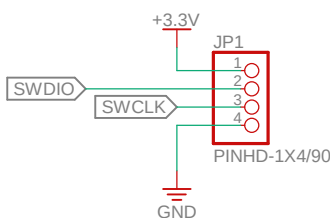


Power Management

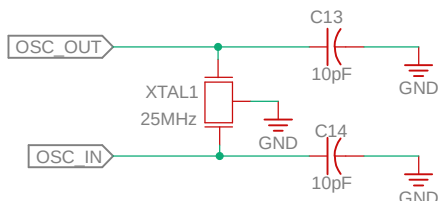


Programming Header

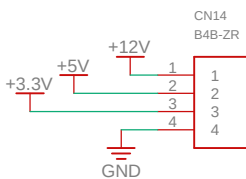


Crystals

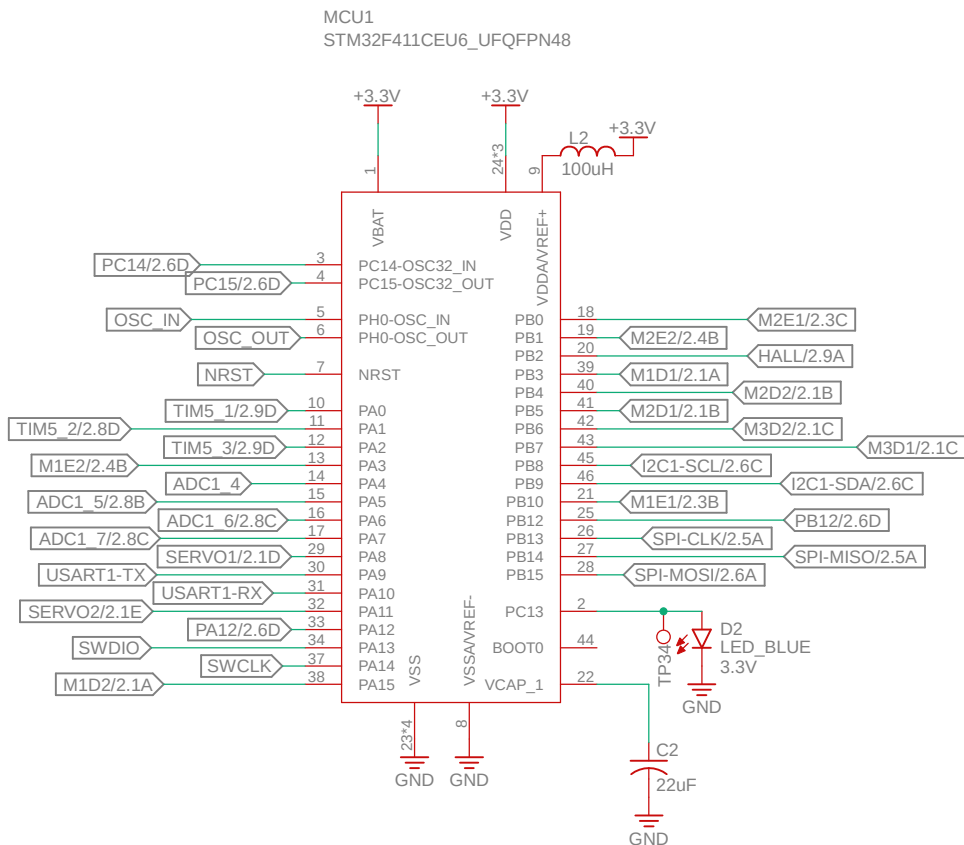
High Speed



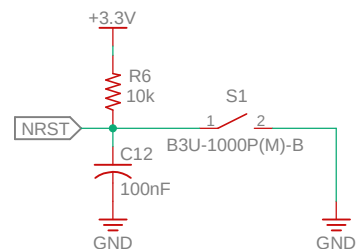
Power Bus



MCU Connections



Reset

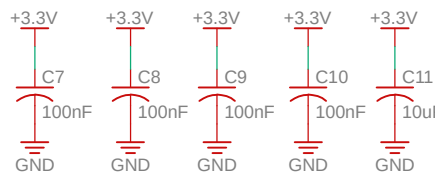


UART HEADER



Decoupling Capacitors

Place one near each power pair and the 10uF near the input



NOTES:

NOTE 1: EXPECTED TEMPERATURE RISE ON IC1 IS
 $P_{DISP} = (1/e-1) \times V_{OUT} \times I_{OUT}$
 $= (1/0.8-1) \times 5V \times 1.8A$
 $= 2.25W$

$TRISE = P_{DISP} \times R_{JB}$
 $= 2.25W \times 6C/W$
 $= 13.5C$

NOTE 2: EXPECTED TEMPERATURE RISE ON IC2 IS
 $VDROP = V_{IN} - V_{OUT}$
 $= 5V - 3.3V$
 $= 1.7V$

$P_{LOSS} = VDROP \times I_{OUT}$
 $= 1.7V \times 0.3A$
 $= 0.51W$

$TRISE = P_{LOSS} \times R_{JB}$
 $= 0.51W \times 10C/W$
 $= 5.1C$

NOTE 3: CAPACITOR SIZING FOR OSCILLATORS
High Frequency Oscillator

$C1, C2 = 2 \times CL - 2 \times C_{stray}$
 $= 2 \times 10pF - 2 \times 5pF$
 $= 10pF$

Low Frequency Oscillator

$C1, C2 = 2 \times CL - 2 \times C_{stray}$
 $= 2 \times 12.5pF - 2 \times 5pF$
 $= 15pF$

NOTE 4: RESISTOR DIVIDER FOR BATTERY MONITORING
 $VR2 = R2/(R1+R2) \times V_{IN}$
 $3.3V = R2/(10K+R2) \times 12.6$
 $R2 = 3.5k$
USE $R2 = 3.3k$

NOTE 5:
ALL CAPACITORS ARE CERAMIC TYPE

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TITLE: Electronics Schematic v34

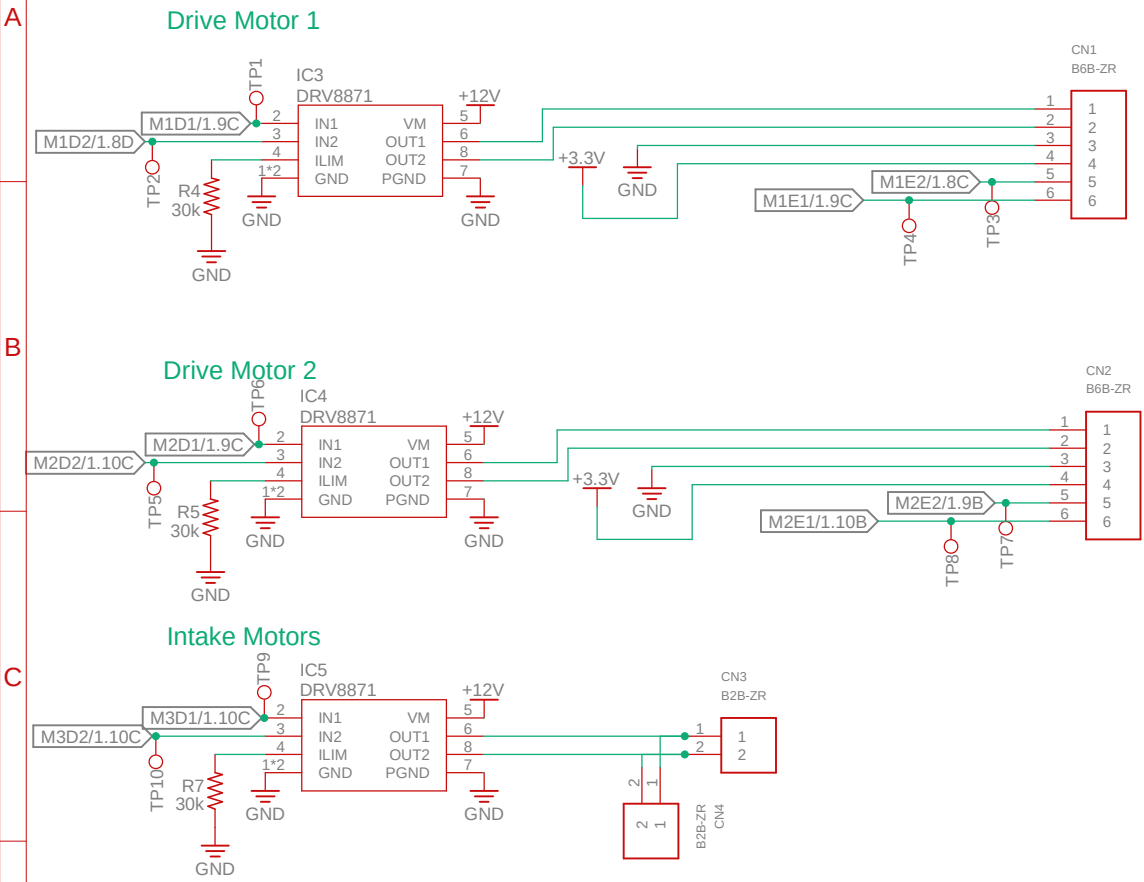
Drawn By: Rees V.

REV: V1

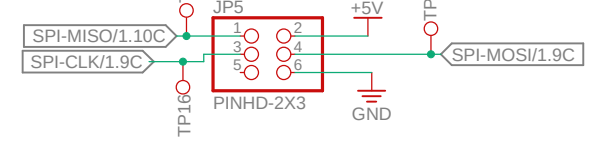
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Sheet: 1/2

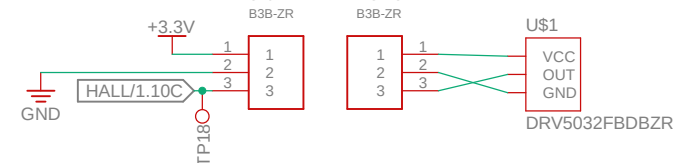
Motor Drivers



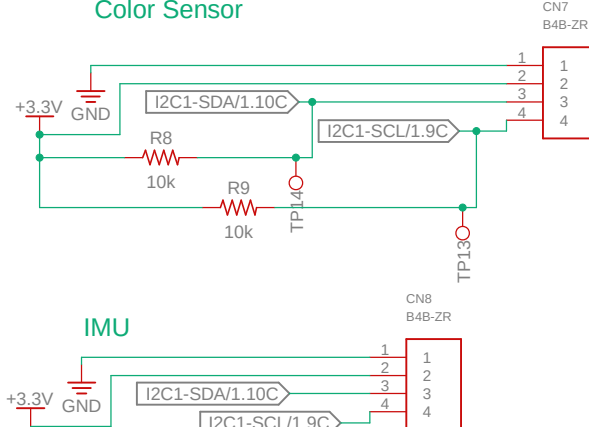
Pixycam Port



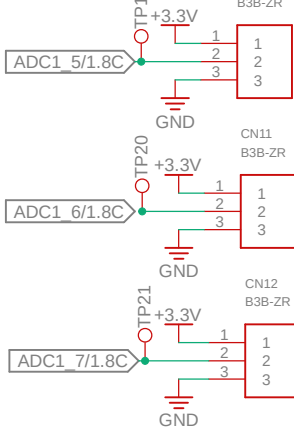
Hall Effect Sensor



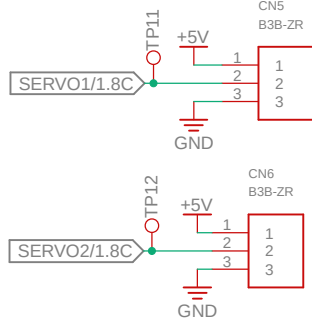
I2C Ports



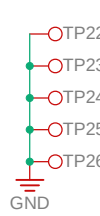
Line Sensors



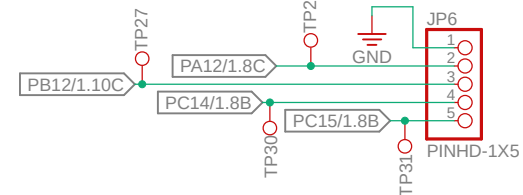
Servo Connectors



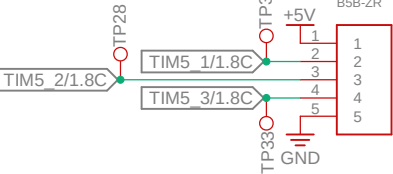
Ground Testpoints



Spare Pins



Radio Control



NOTES:

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TITLE: Electronics Schematic v36	
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Date: 5/5/2023 11:02 PM	Sheet: 2/2