

A

A

B

B

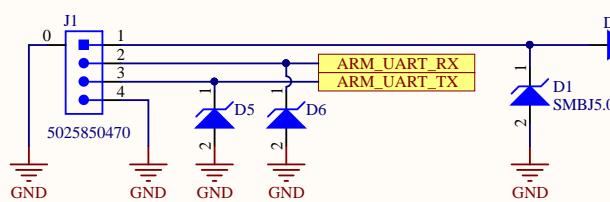
C

C

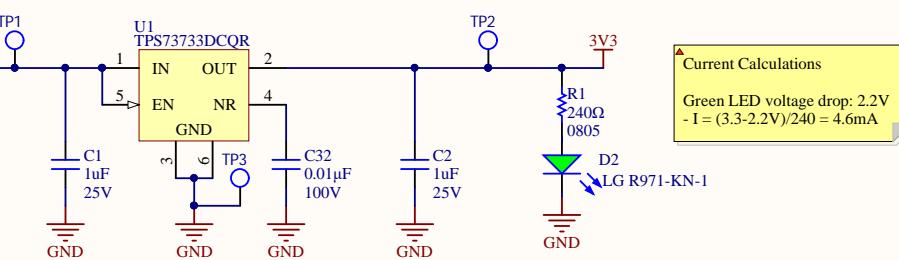
D

D

Power In



5V to 3V3 LDO



Current Calculations
Green LED voltage drop: 2.2V
- I = (3.3-2.2V)/240 = 4.6mA

Title: RC Arm - Power

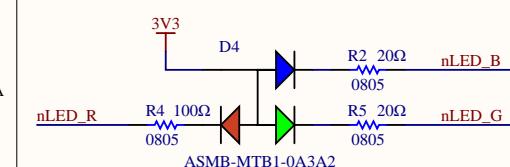
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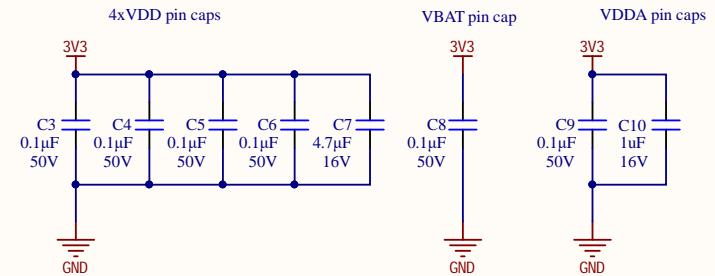


Test LEDs

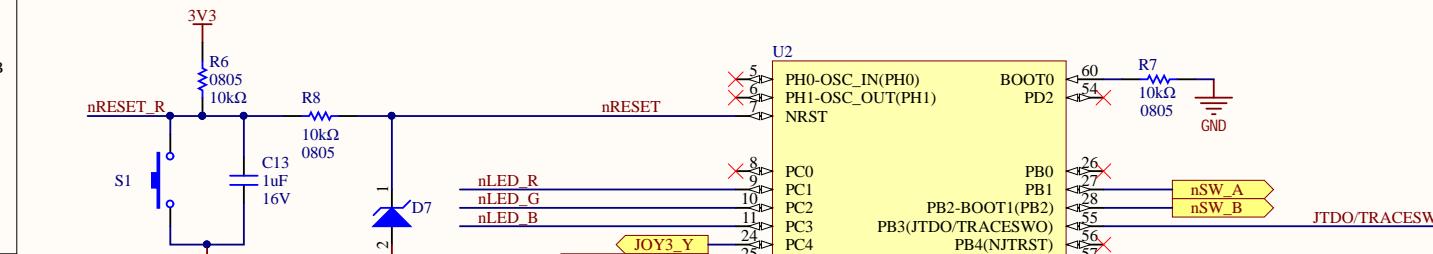


Current Calculations
RGB LED voltage drops:
- Red: $2.1V: I = (3.3-2.1V)/100 = 12mA$
- Blue: $3.1V: I = (3.3-3.1V)/20 = 10mA$
- Green: $3.1V: I = (3.3-3.1V)/20 = 10mA$

Decoupling Caps

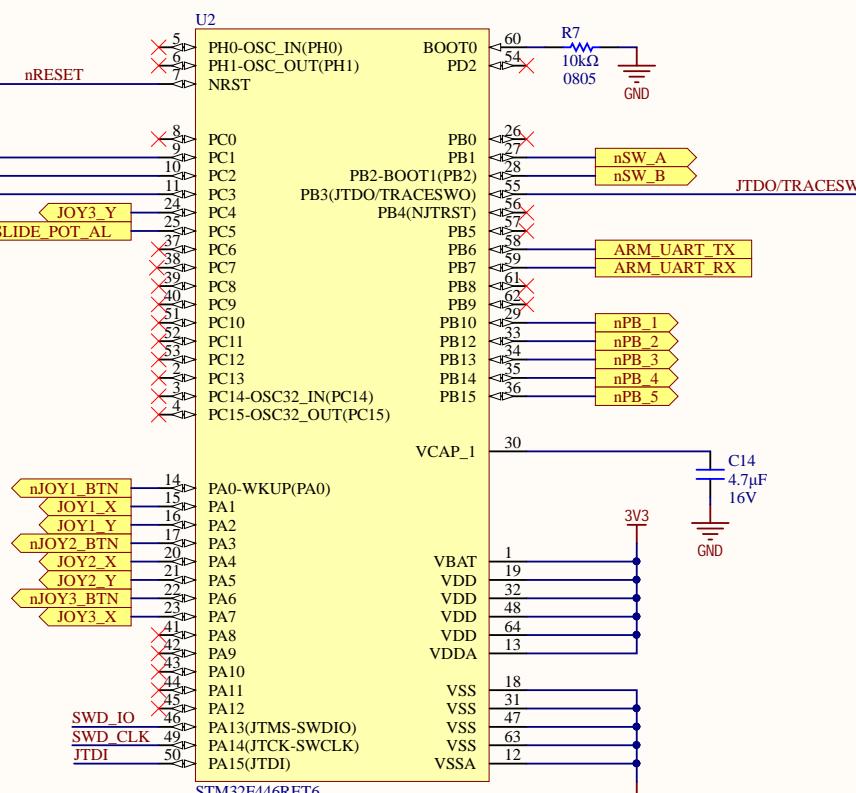


Reset Button

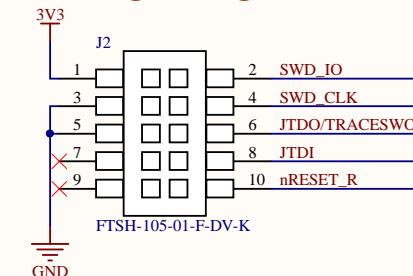


For Debounce Circuit:
T=RC → C= T/R
C= 10ms/10kOhms= 1uF

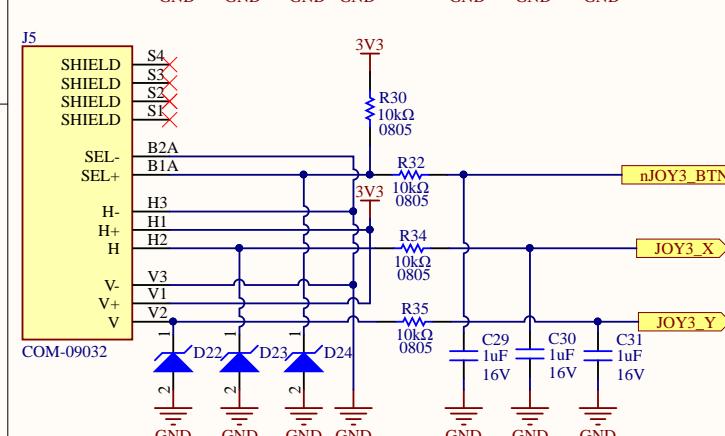
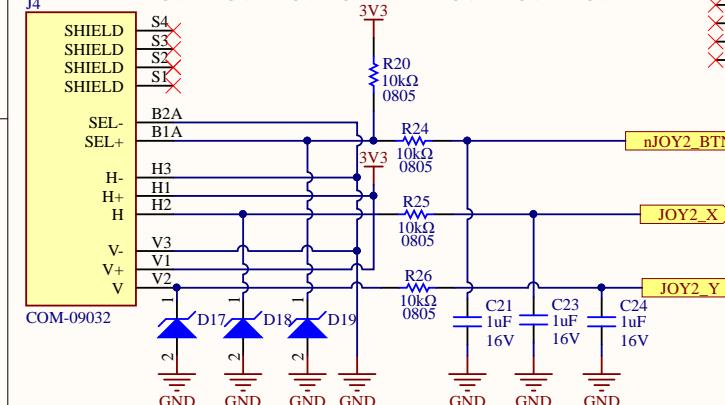
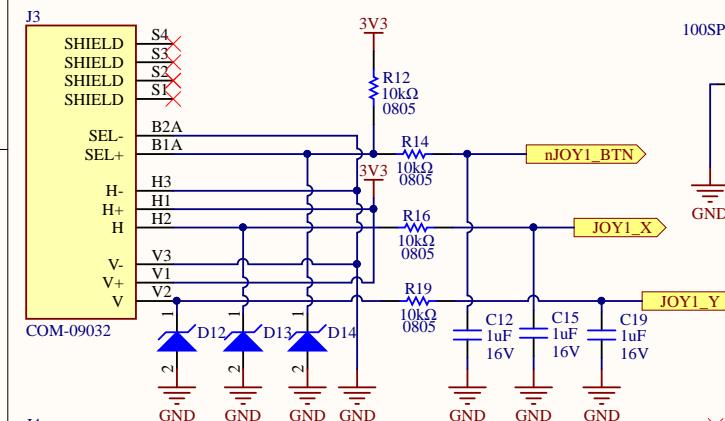
STM32F446RET6



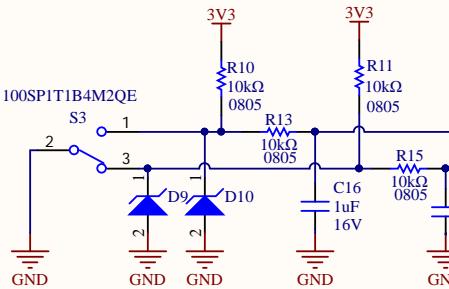
Debug/Programming



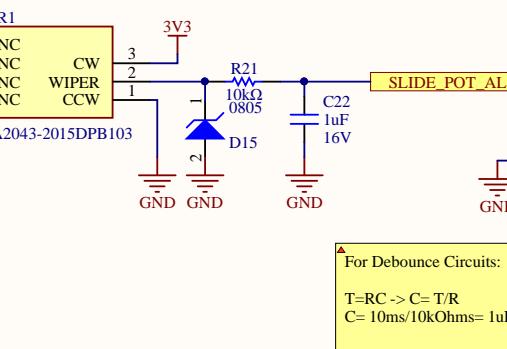
2-Axis Joysticks



SPDT Switch



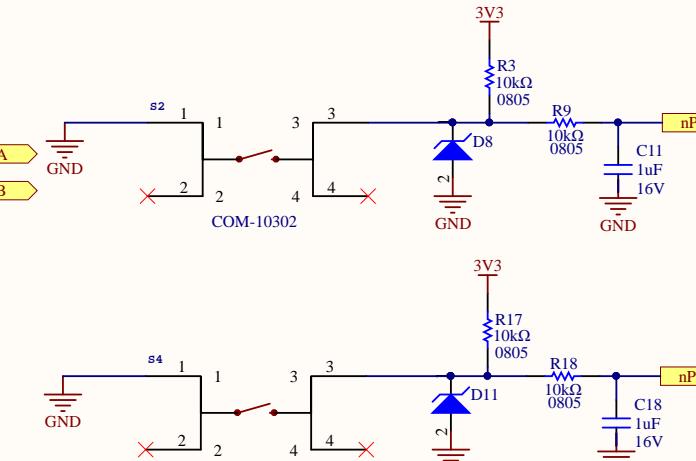
Slide Potentiometer



For Debounce Circuits:
 $T=RC \rightarrow C = T/R$
 $C = 10\text{ms}/10\text{kOhms} = 1\mu\text{F}$

Controls
 Joysticks: (in joint-control mode)
 - 1: Up/Down is for shoulder, Left/Right is for turntable
 - 2: Up/Down is for elbow
 - 3: Up/Down is for wrist pitch, Left/Right is for wrist roll
 Switch:
 - Used to toggle between joint-control and inverse-kinematics
 Potentiometer:
 - Used to adjust movement speed of joints/arm (depending on control mode)
 Buttons:
 - 1/2: Open/close claw
 - 3/4: Set/Go to home position
 - 5: Extra, in case extra functionality is requested later

Pushbuttons



Title: RC Arm - Controls

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