

A

A

B

B

C

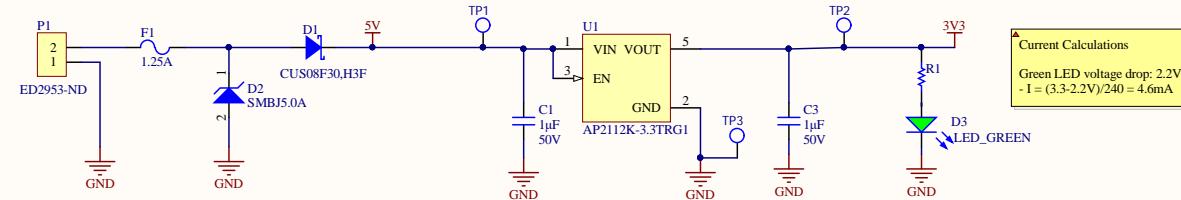
6

D

D

Power In

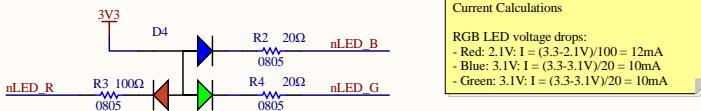
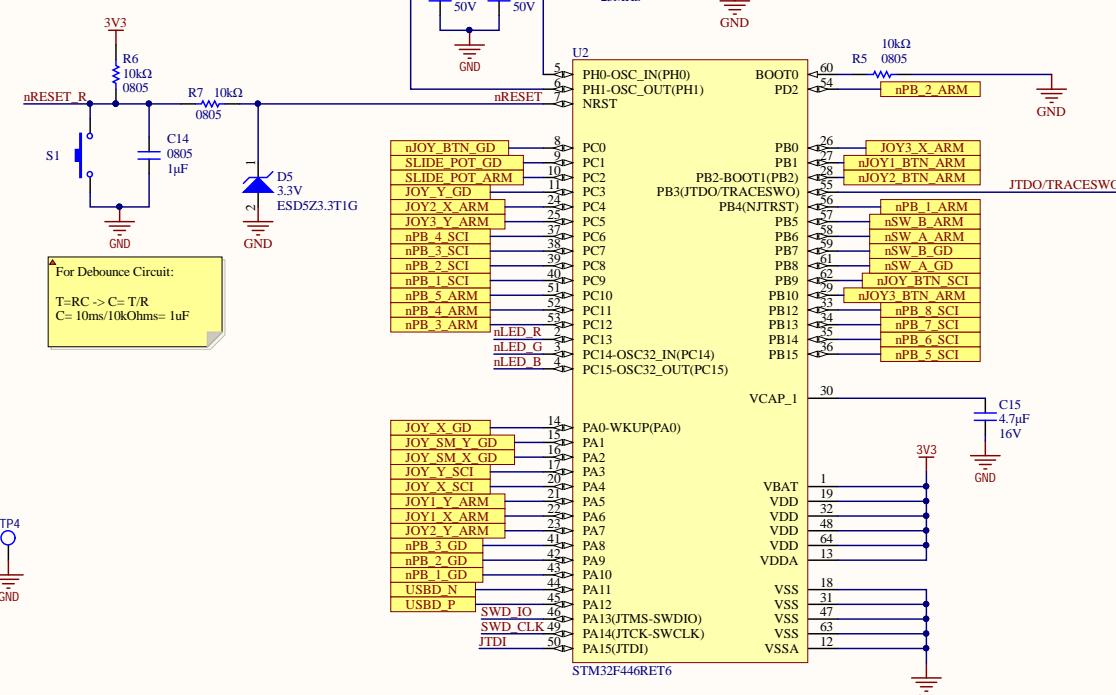
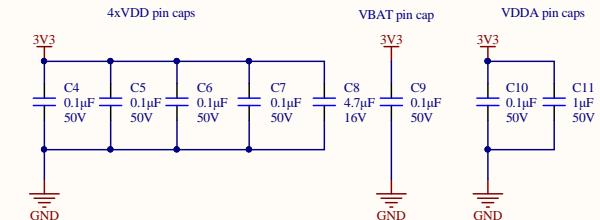
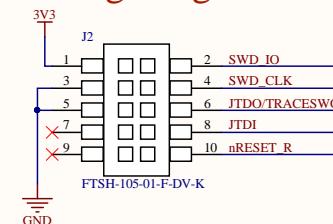
5V to 3V3 LDO



Green LED voltage drop: 2V

Title:	Power		
Project:	Robot Controller.PrjPcb		
Rev:	1	Checker:	Lance Bantoto
		Engineer:	Christopher Arjune
Date:	2021-01-02	Sheet:	1 of 6



RGB LED**Reset Button****Decoupling Caps****Debug/Programming**

Title: Microcontroller

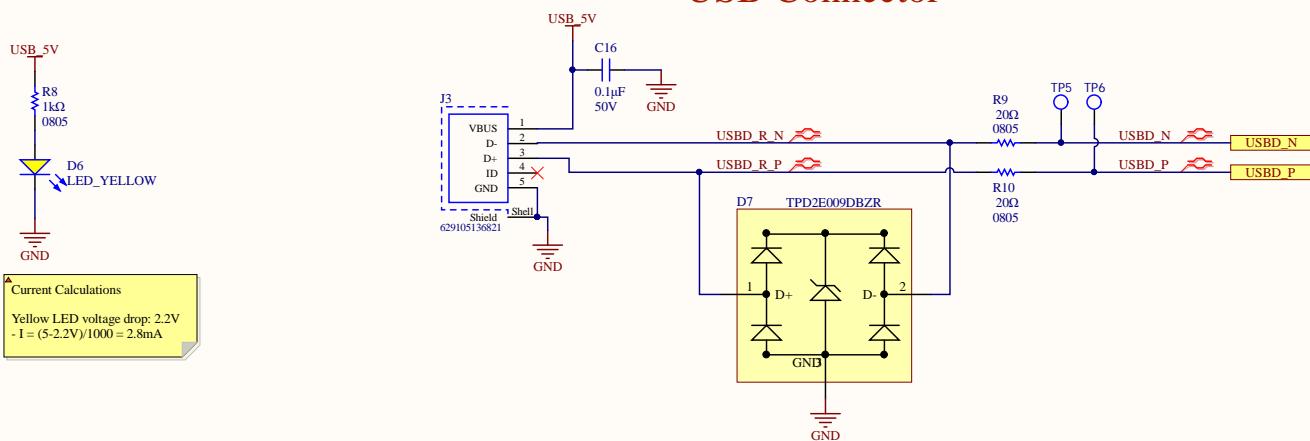
Project: Robot Controller.PrbPcb

Rev: 1 Checker: Lance Bantoto

Engineer: Christopher Arjune

Date: 2021-01-02 Sheet: 2 of 6

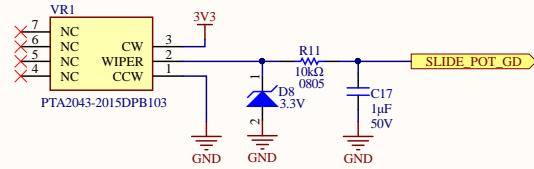
USB Connector



Title: USB	
Project: Robot Controller.PrjPcb	
Rev: 1	Checker: Lance Bantoto
Engineer: Christopher Arjune	
Date: 2021-01-02	Sheet: 3 of 6



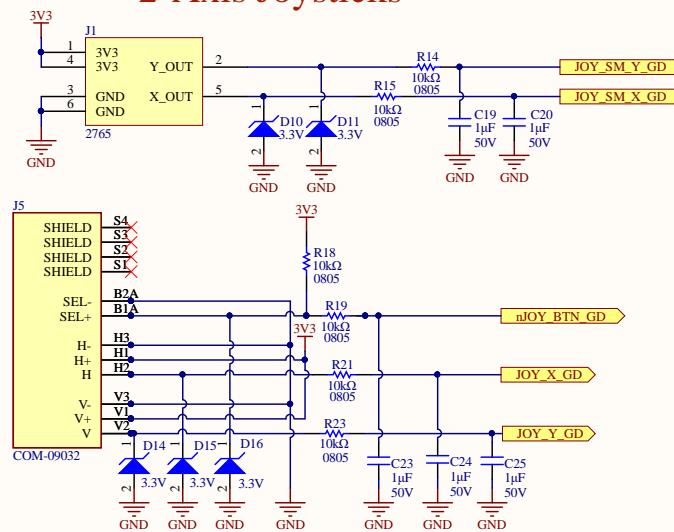
Slide Potentiometer



For Debounce Circuits:

$$T=RC \rightarrow C = T/R \\ C = 10\text{ms}/10\text{k}\Omega = 1\mu\text{F}$$

2-Axis Joysticks



Controls (subject to change)

- Joysticks:
 - 1: Large joystick is used for driving
 - 2: Small joystick is used for gimbal

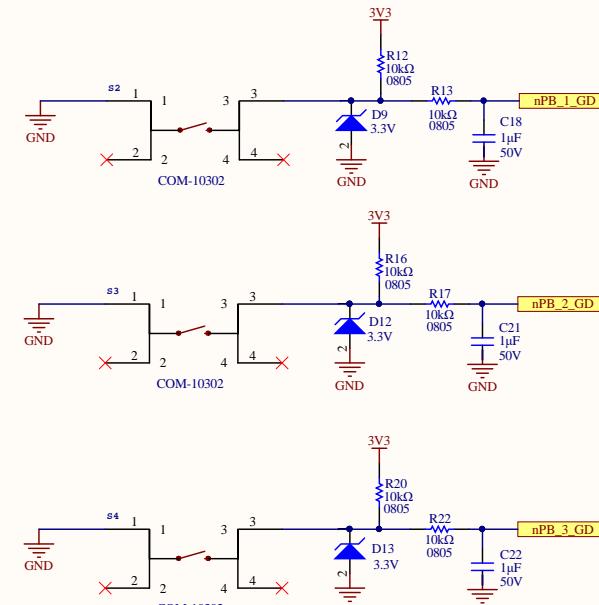
Potentiometer:

- Used for driving speed control

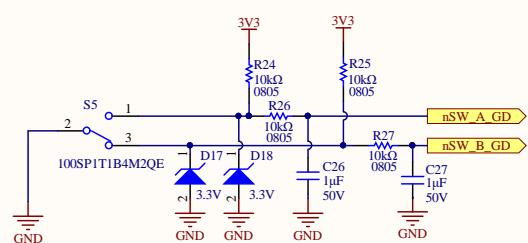
Switch:

- Used for reverse-mode toggle
- 1: Full-stop (halt all movement immediately)
- 2-3: Extra, in case additional functionality is requested

Pushbuttons



SPDT Switch



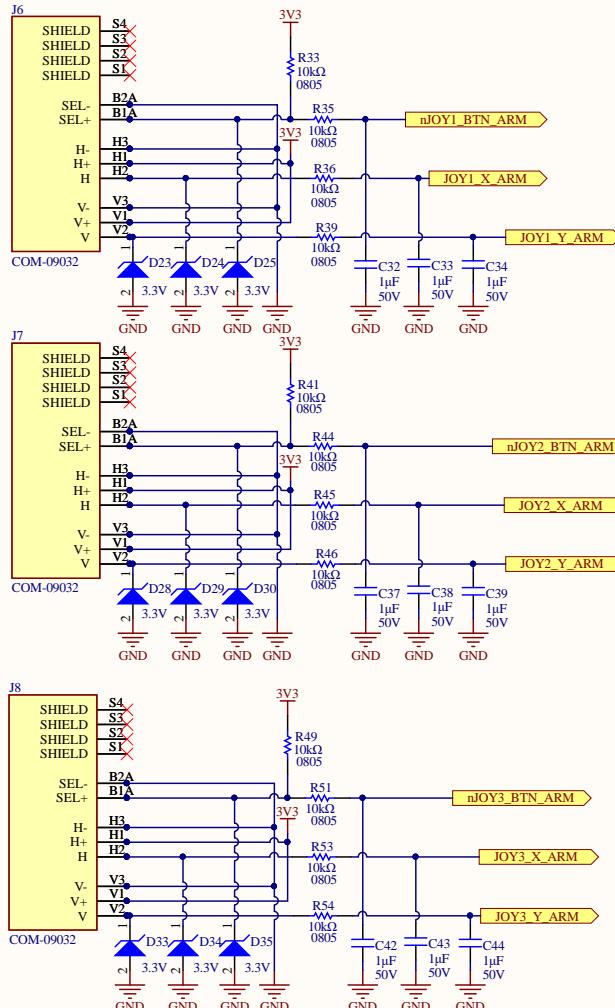
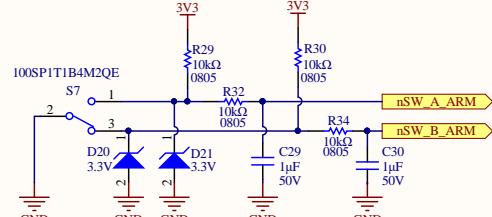
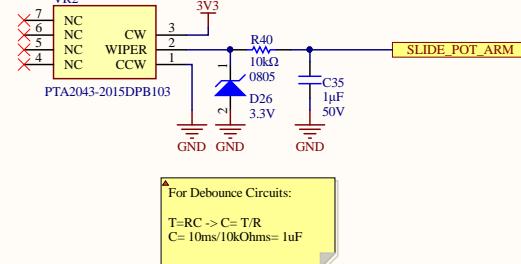
Title: GimbdDrive Controls

Project: Robot Controller.PrbPcb

Rev: 1 Checker: Lance Bantoto

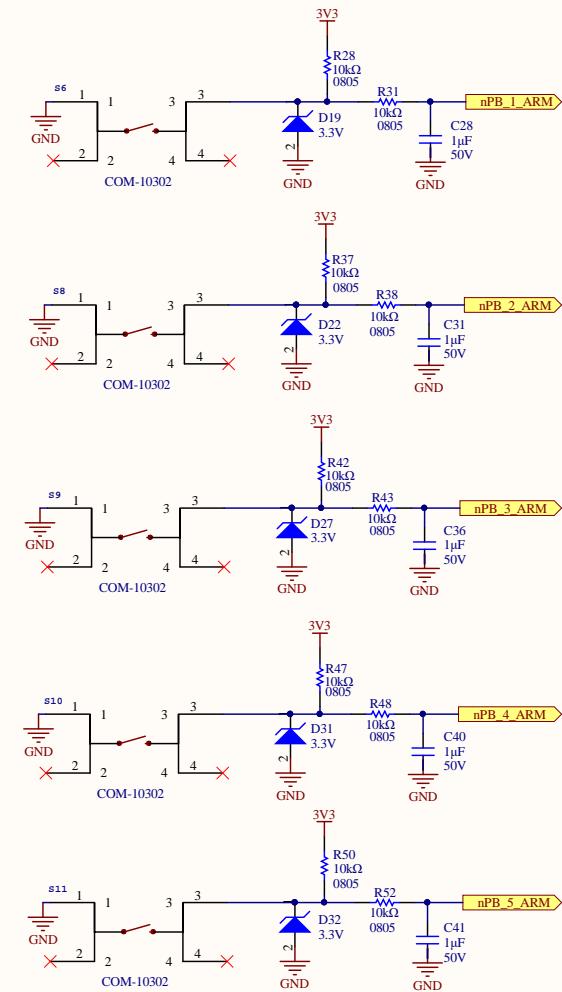
Engineer: Christopher Arjune

Date: 2021-01-02 Sheet: 4 of 6

2-Axis Joysticks**SPDT Switch****Slide Potentiometer**

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: Arm Controls

Project: Robot Controller.PrbPcb

Rev: 1 Checker: Lance Bantoto

Engineer: Christopher Arjune

Date: 2021-01-02 Sheet: 5 of 6

A

A

B

B

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C

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D

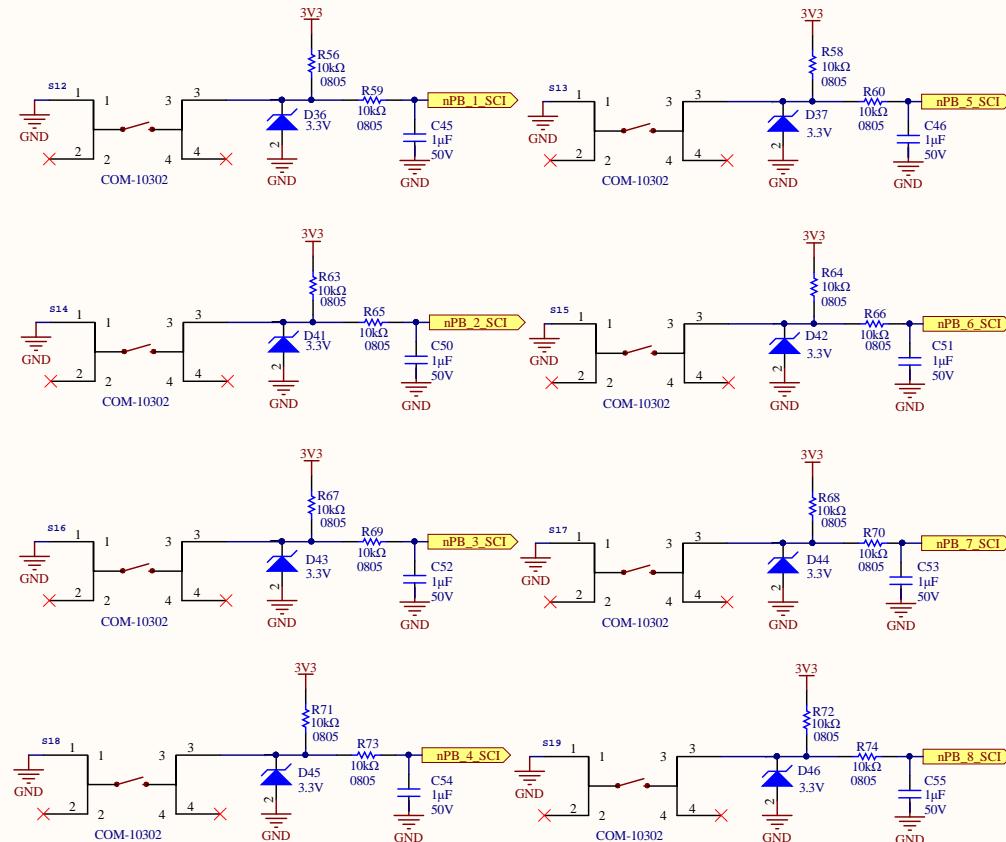
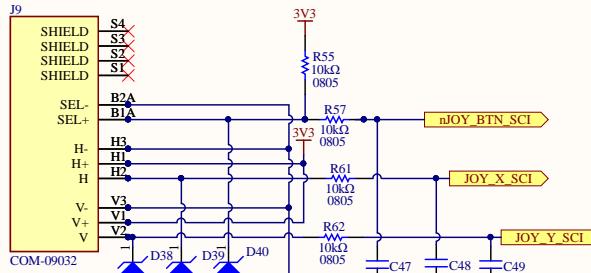
Pushbuttons

For Debounce Circuits:

$$T = RC \rightarrow C = T/R$$

$$C = 10\text{ms}/10\text{kOhms} = 1\mu\text{F}$$

2-Axis Joystick



Controls

Joystick:

- Up/Down for elevator, Left/Right is for opening/closing shovel
- Button should be used to choose between L/R and U/D, since the science mechanism may be damaged if too many things are moving at once

Buttons:

- 1/2: Move left/right 1 index
- 3/4: Move to leftmost/rightmost index
- 5/6: Open/close lid
- 7: Pre-programmed mixing sequence
- 8: Extra, in case additional functionality is requested later

Title: Science Controls

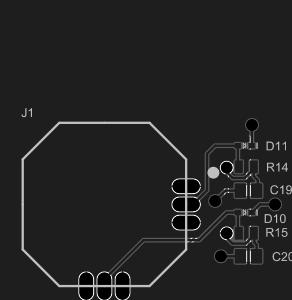
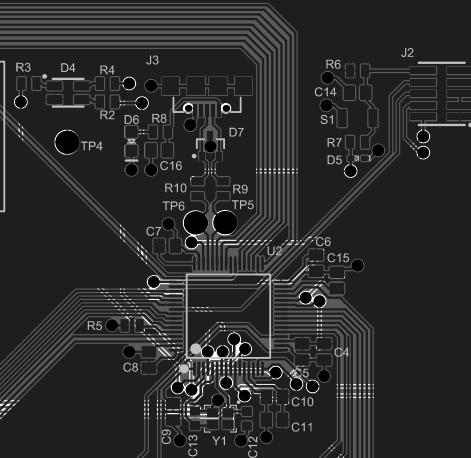
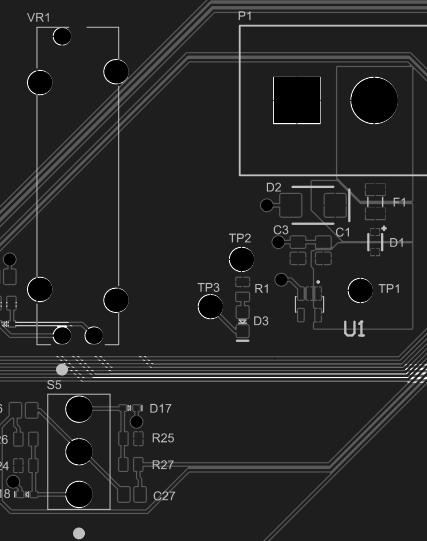
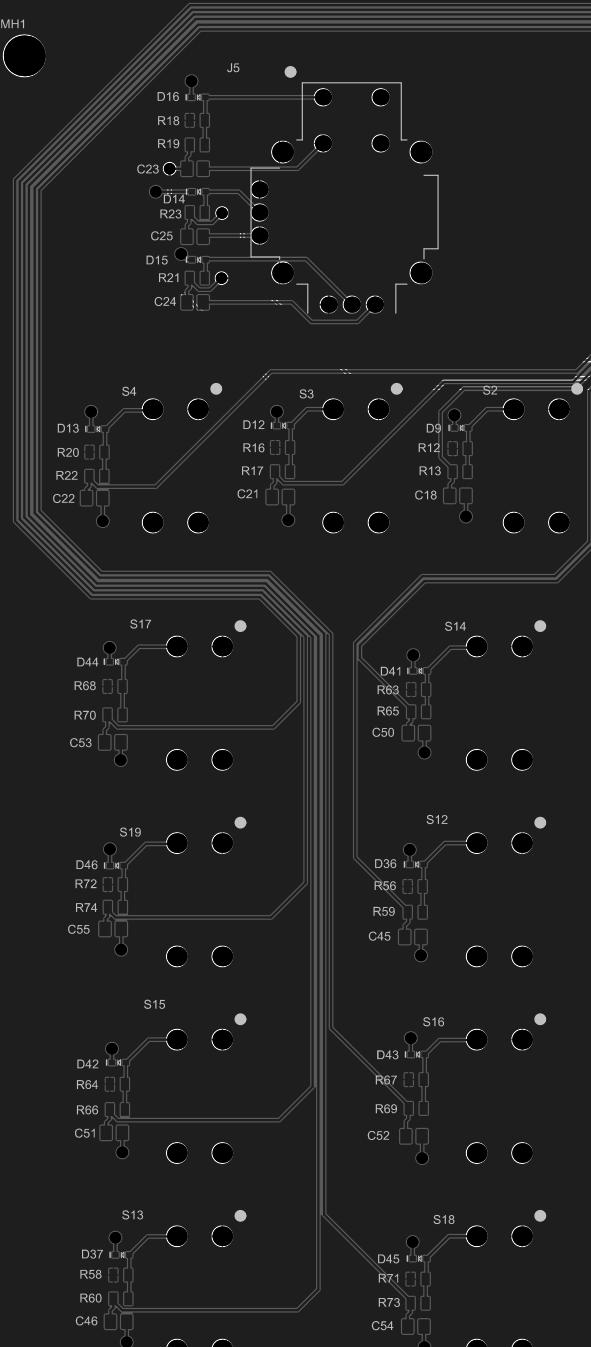
Project: Robot Controller.PnjPcb

Rev: 1 Checker: Lance Bantoto

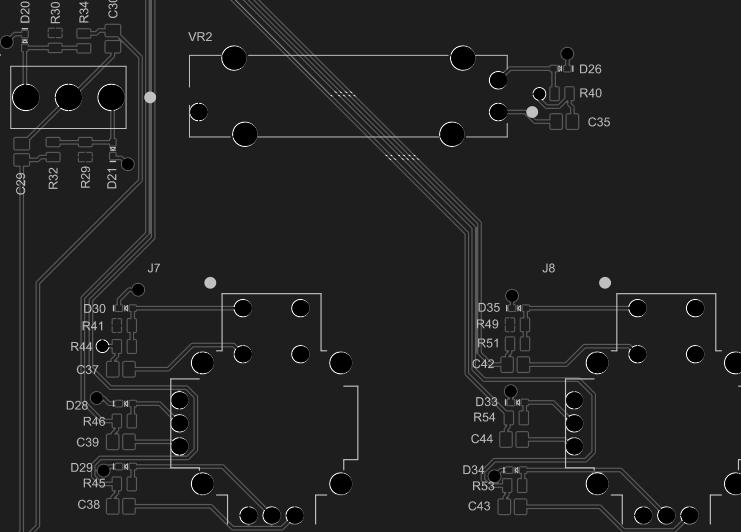
Engineer: Christopher Arjune

Date: 2021-01-02 Sheet: 6 of 6

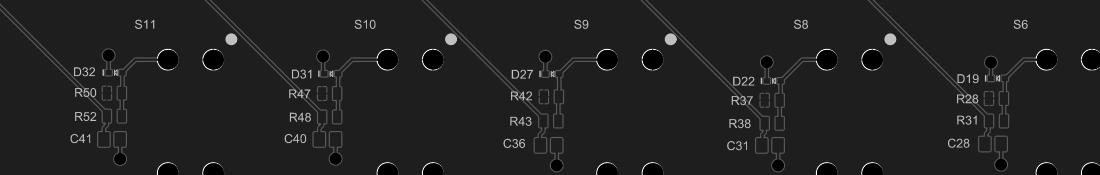
MH1



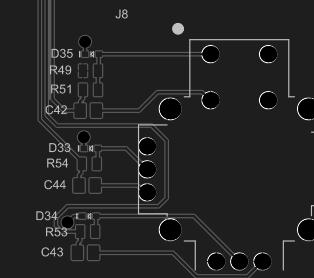
MH2



MH3



MH4



MH3



MH4

