

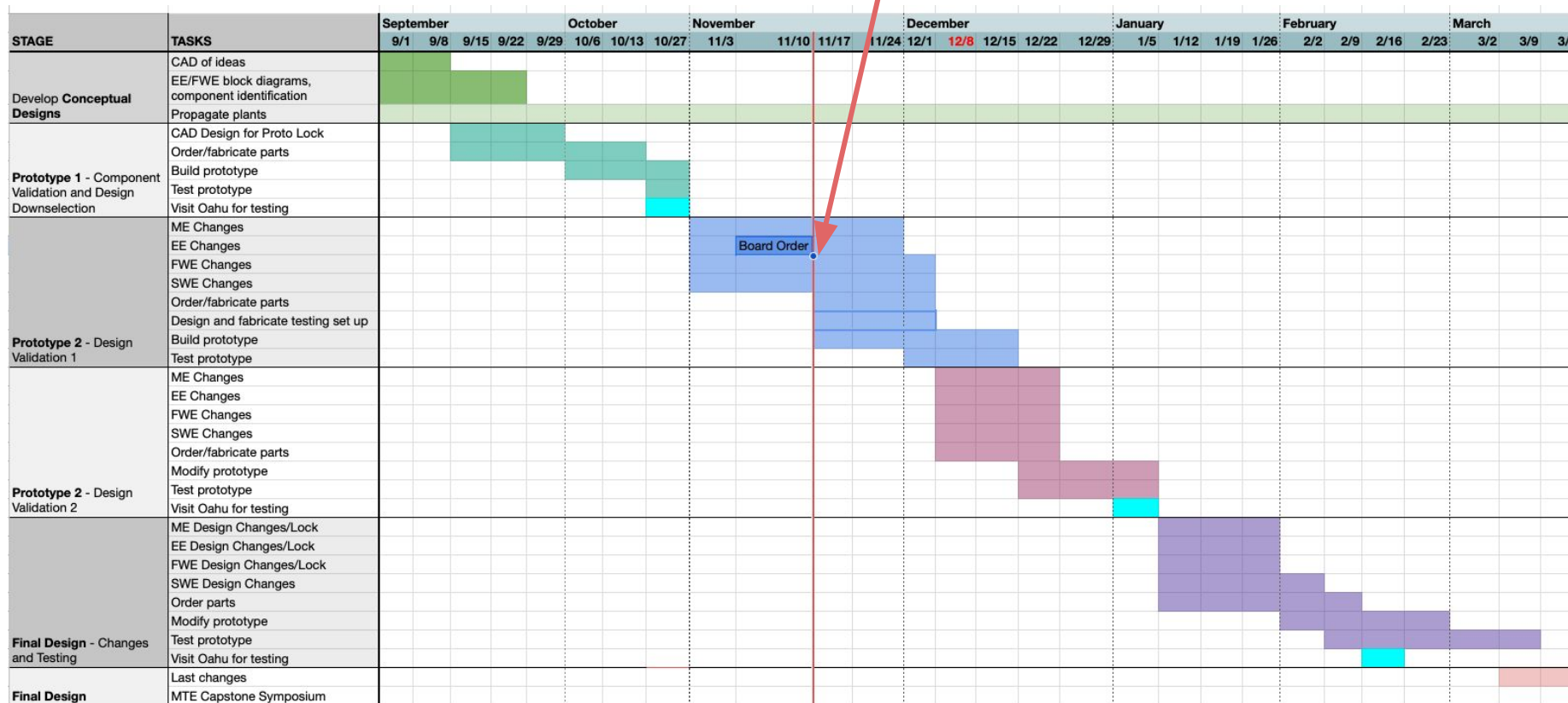
# Salico -

## Updates

11.20.2024

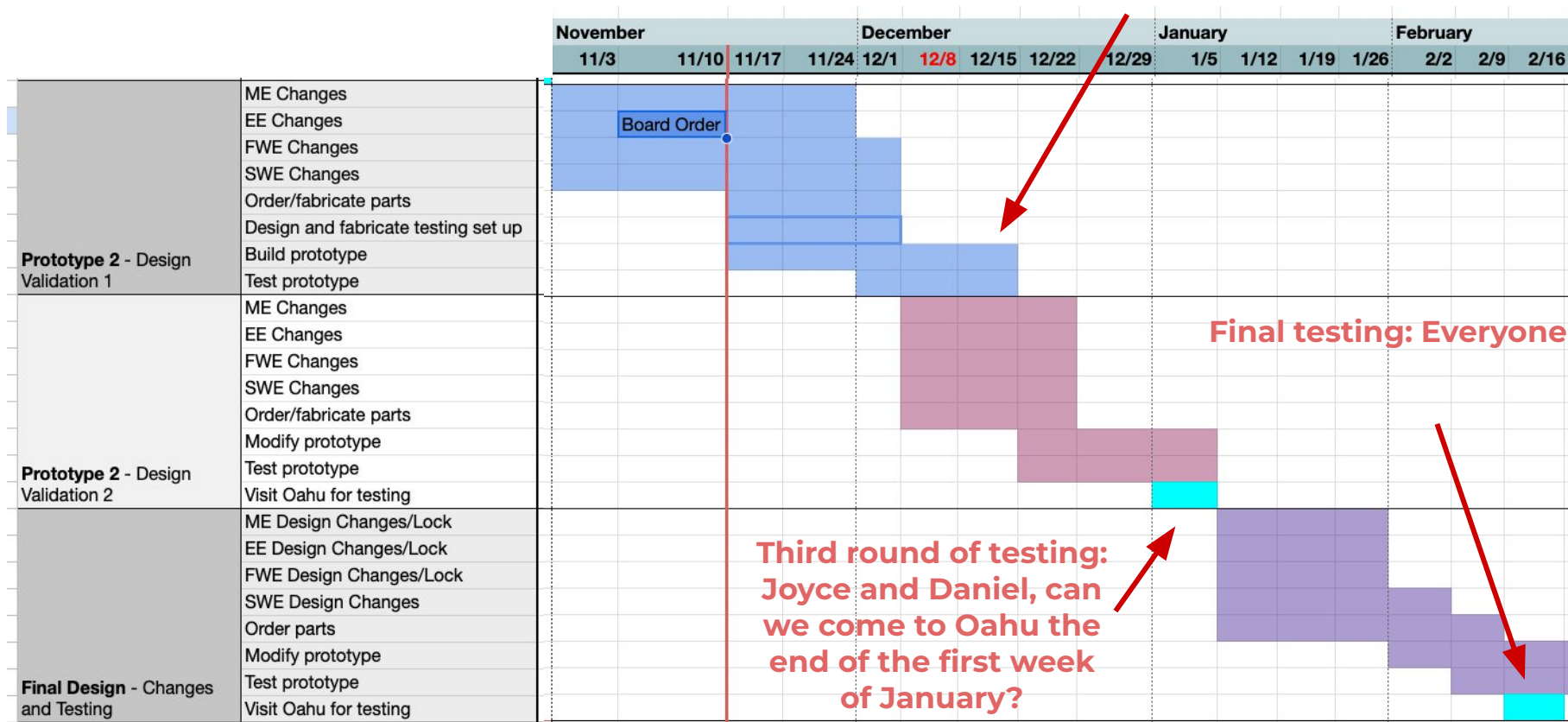
# Schedule

# We are here



# Schedule & Travel Plans

Prototyping and one round of testing before the winter break



# Implementation

**#1** Top-down picking approach (most similar to our tests in Hawaii)

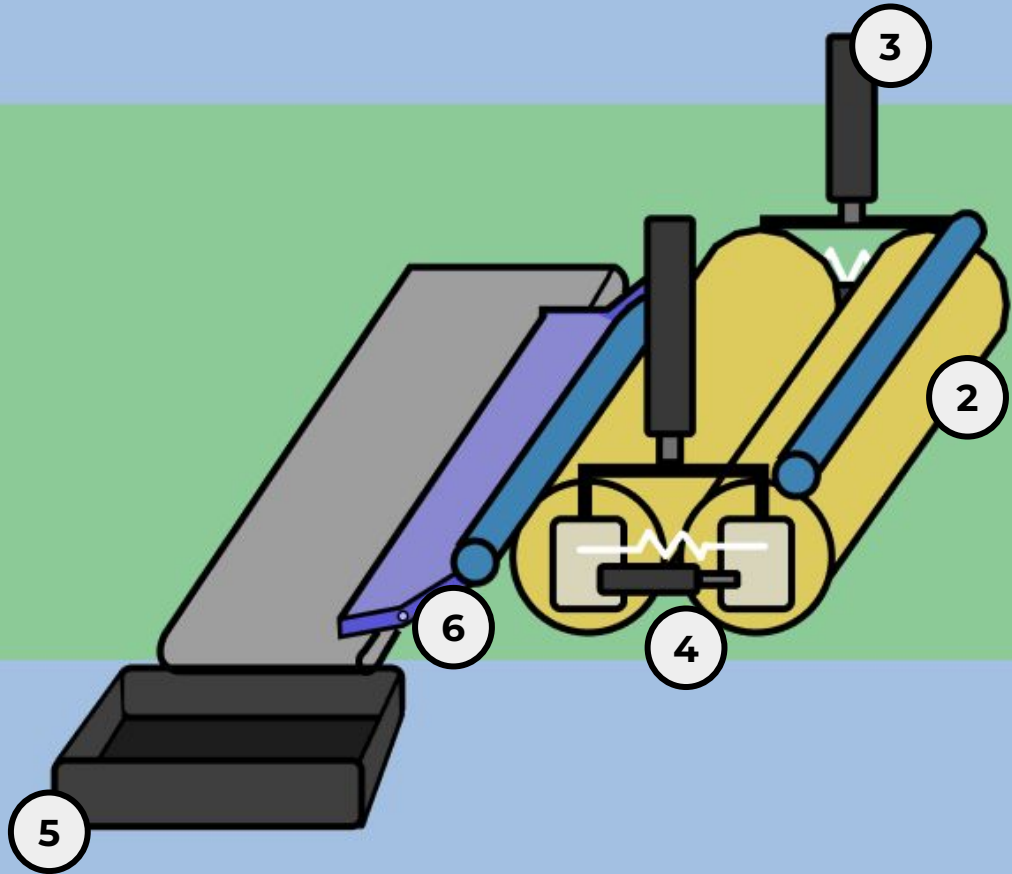
**#2** Roller material will be 20A urethane with a textured latex sleeve

**#3** Pistons and springs for up down motions

**#4** One motor for each roller, direct drive

**#5** One sided collection bin, tips pushed in using brushes and air

**#6** “Hinged” ramp for temporary storage in lower position



# ME Updates: Pneumatics

## Piston Diameter Calculations

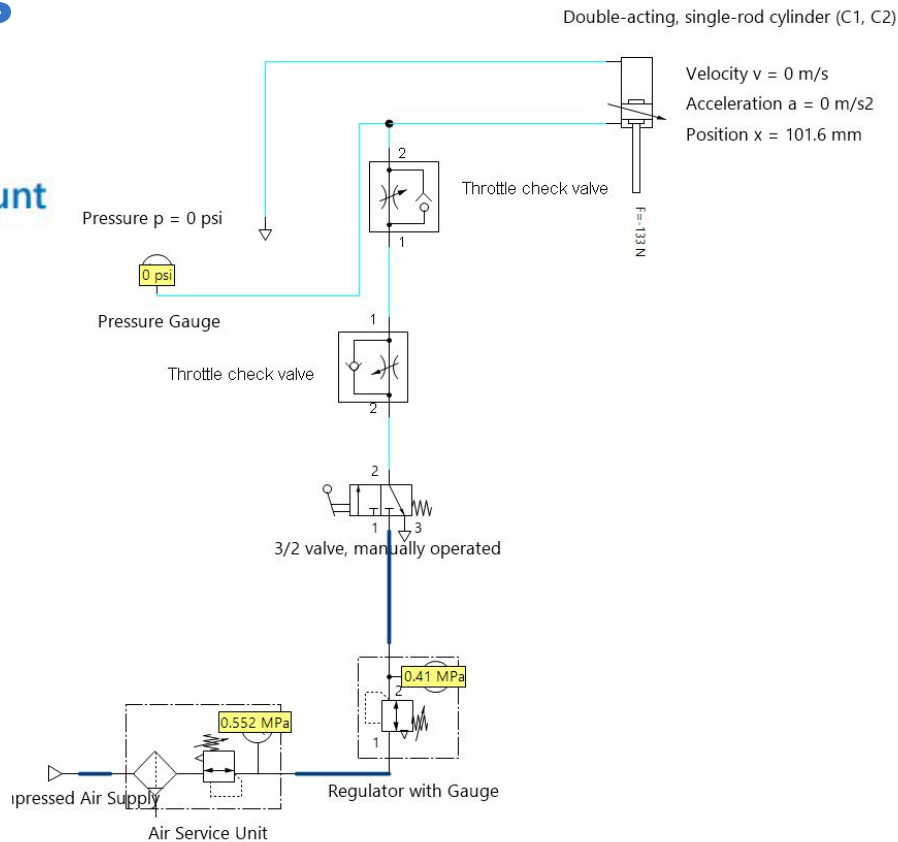
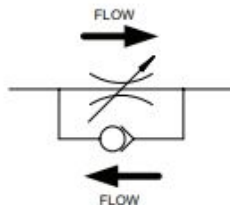
1-1/16 in. Bore, Double-acting, Front Nose Mount



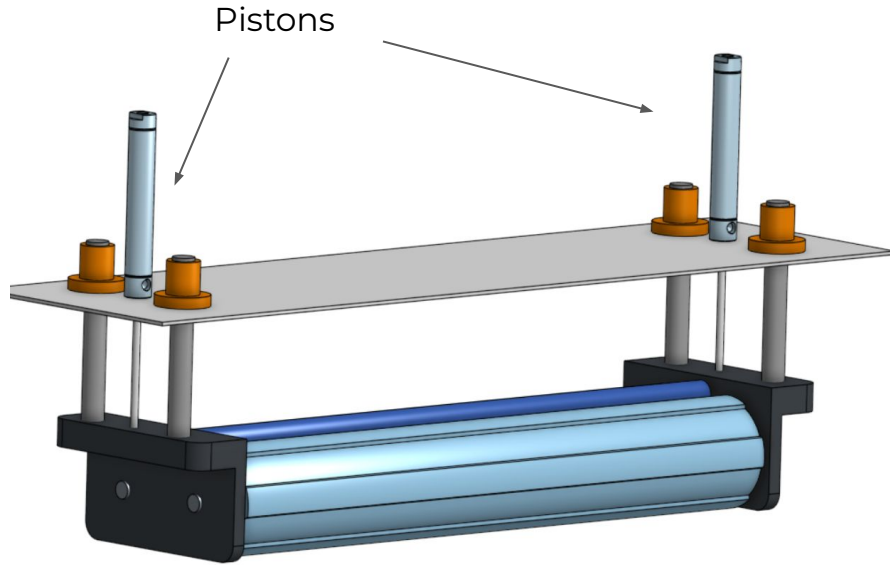
Inch Fitting



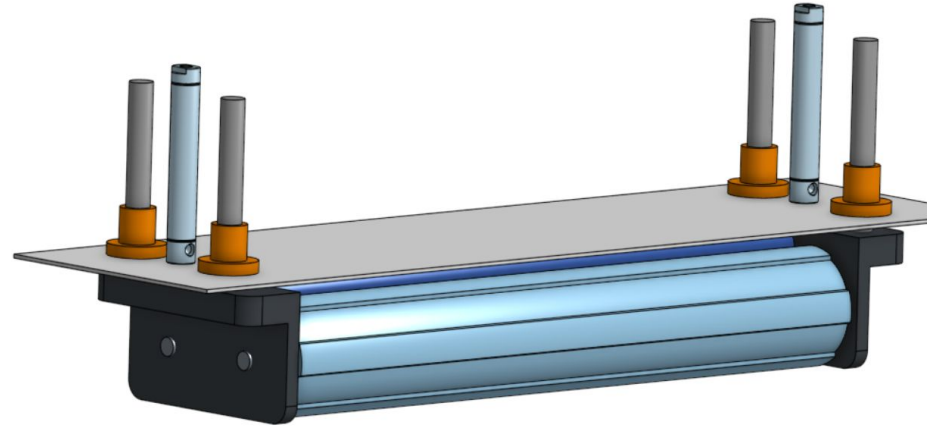
Metric Fitting



# ME Updates: Pneumatics

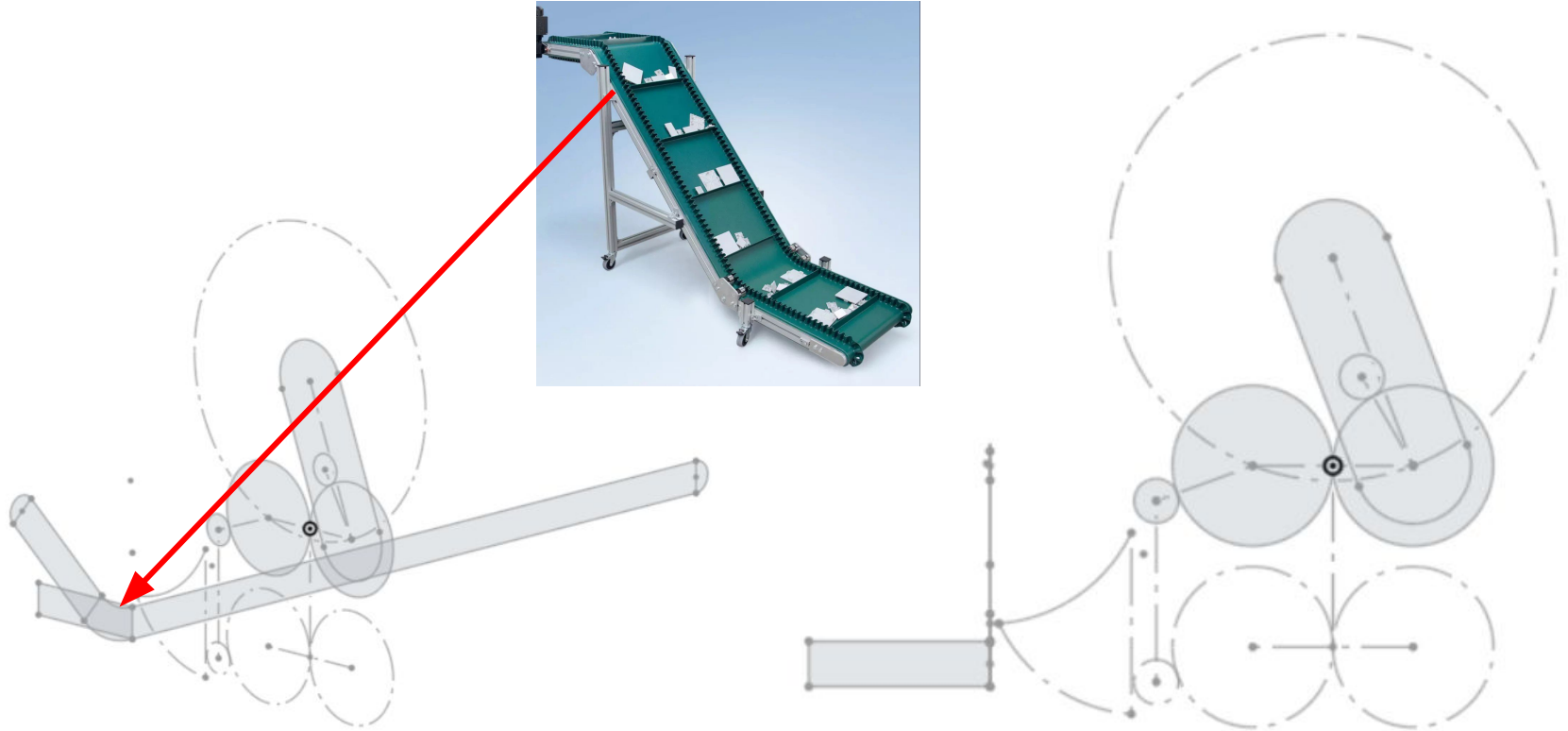


**DOWN STATE**

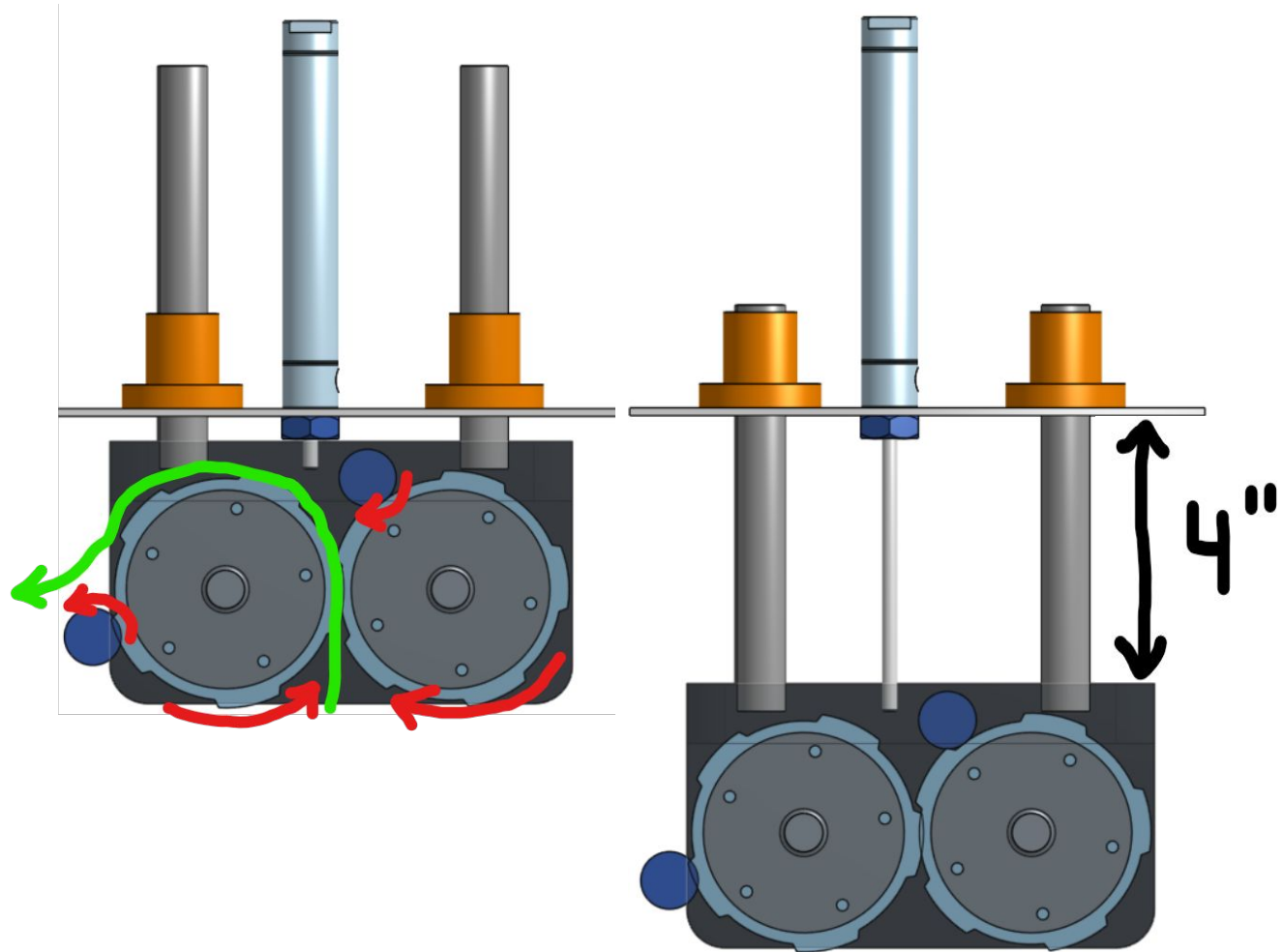


**UP STATE**

# Sketching for Proto 1 CAD - WIP




## ME Updates: Pneumatics






# Frame




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# Rail




[Vention](#)  
90mm Aluminum Pro...



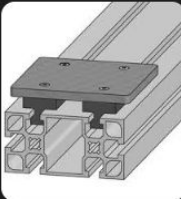
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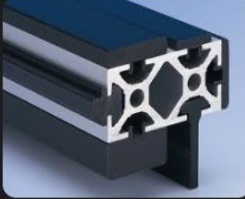
# Attachments




[eBay](#) · In stock  
Nuts Accessories for ...




[Wellste](#)  
Aluminium Profile Accessories, Extrud...




[mk North America](#)  
Extruded Aluminum Framing S...




[HVH Industrial Solutions](#)  
T Slotted Aluminum Extr...



[s.Ext...](#)



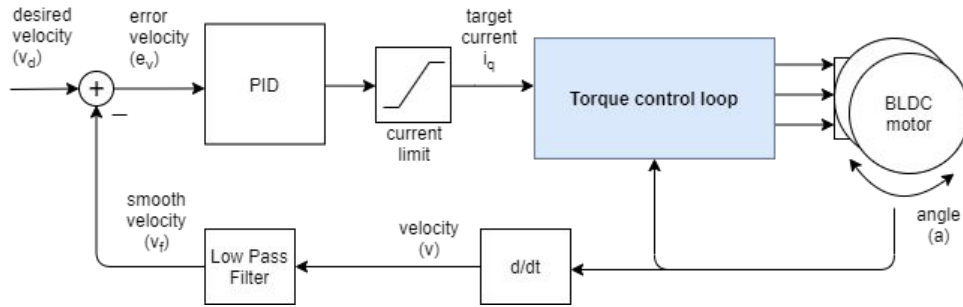
[Mataruk UK](#)  
Aluminium Profile Acce...



[ZYLtech](#)  
Aluminum Extrusion - A...

ACCESSORIES

# FWE Updates: Roller BLDC Motor Control

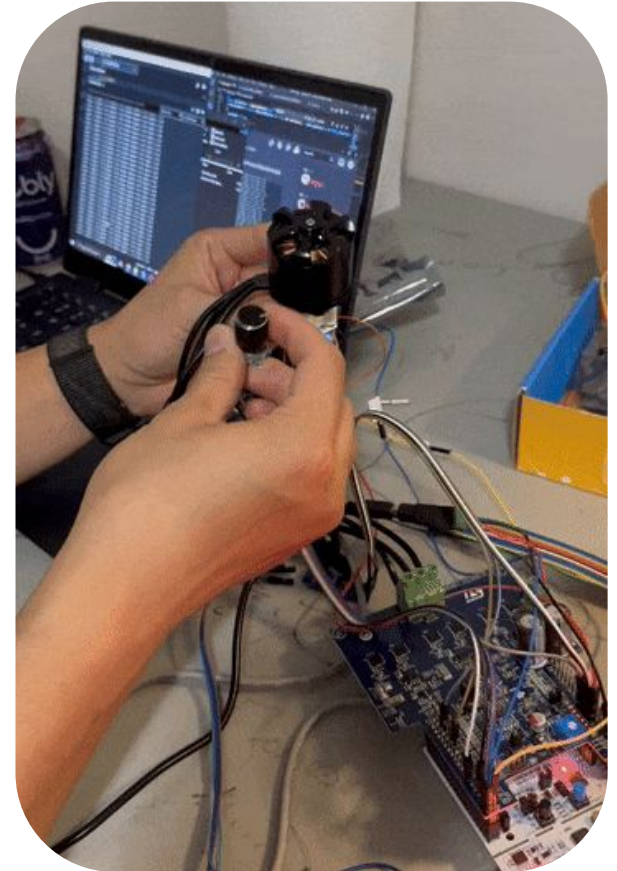


[https://docs.simplefoc.com/velocity\\_loop](https://docs.simplefoc.com/velocity_loop)

- Closed loop velocity control using magnetic angle sensor
- Torque limiting using phase currents
- 2ms (minimum) RTOS motor thread validated

## Additional Sensing

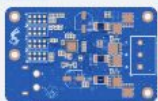
- Buttons for operator input
- Limit switches for triggering conveyor



# EE Updates: Motor Controller

- First set of motor controller boards designed, ordered
- ETA in 2 weeks for 2nd proto testing and implementation

## PCB




PCB Prototype

\$18.81

Salico Picker Motor Controll...

Order #: Y7-3643804A

10pcs

 Production Progress

Build Time:3-4 days

[Product Details](#)

## Stencil



SMT Stencil

\$7.11

Salico Picker Motor Controll...

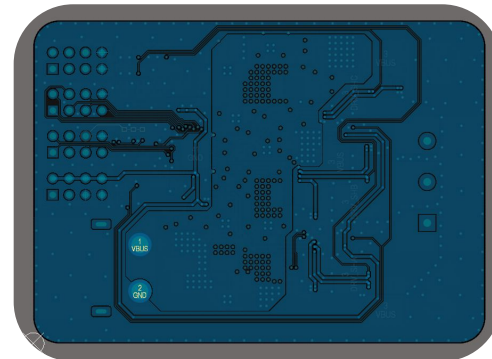
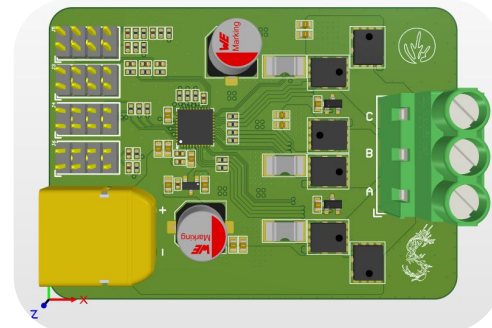
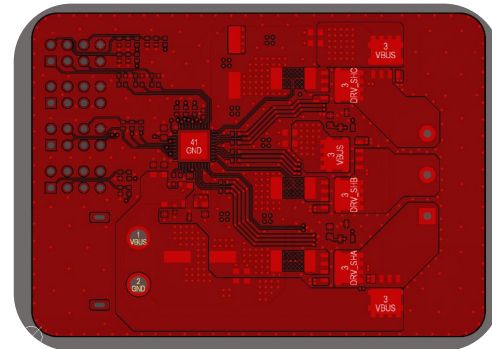
Order #: SO12411136063-364380...

1pcs

 Data Preparation

Build Time:1 day

[Product Details](#)



# Funding

## **We have:**

- \$750 by default from the course
- \$500 from Engineers of the Future Fund yay!

## **We are trying for:**

- Calling sponsors for: pistons, aluminum extrusions, filament, PCBs, other hardware
- Applying to:
  - Gregory E Zinc (one award, valued at up to \$3,000 for renewable energy)
  - Sustainability award (for projects that address one of the United Nations Sustainable Development Goals, \$500-1000)
  - Norman Esch award (minimum of six awards, ranging in value from \$5,000-\$12,000 each for entrepreneurship)
- Hatch: putting together a deck with some of our work, renders, and photos

**Thank you!**