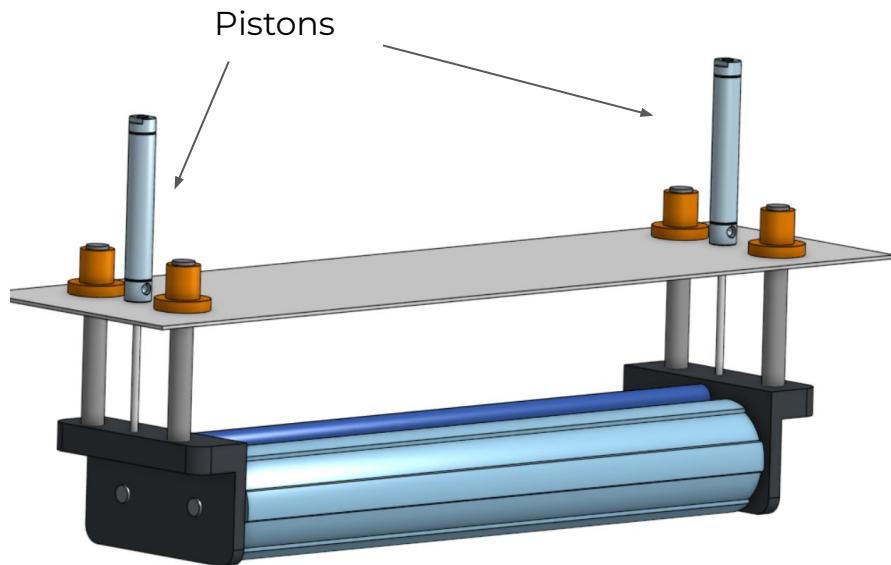
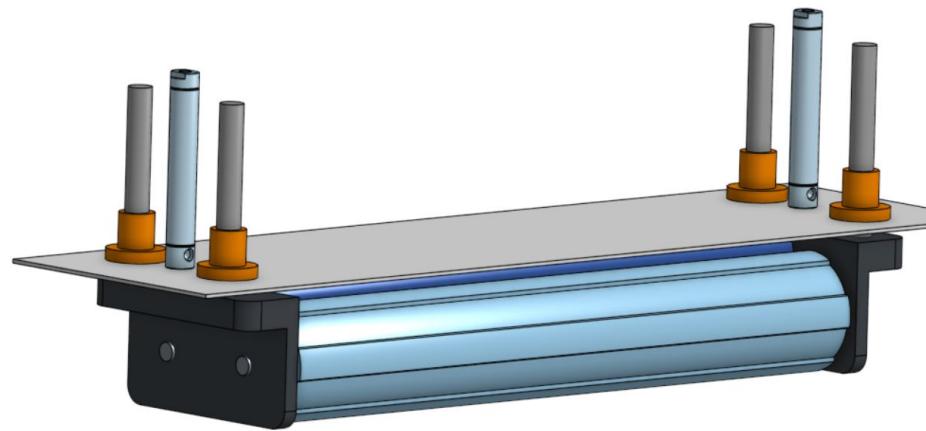


Last time we spoke...

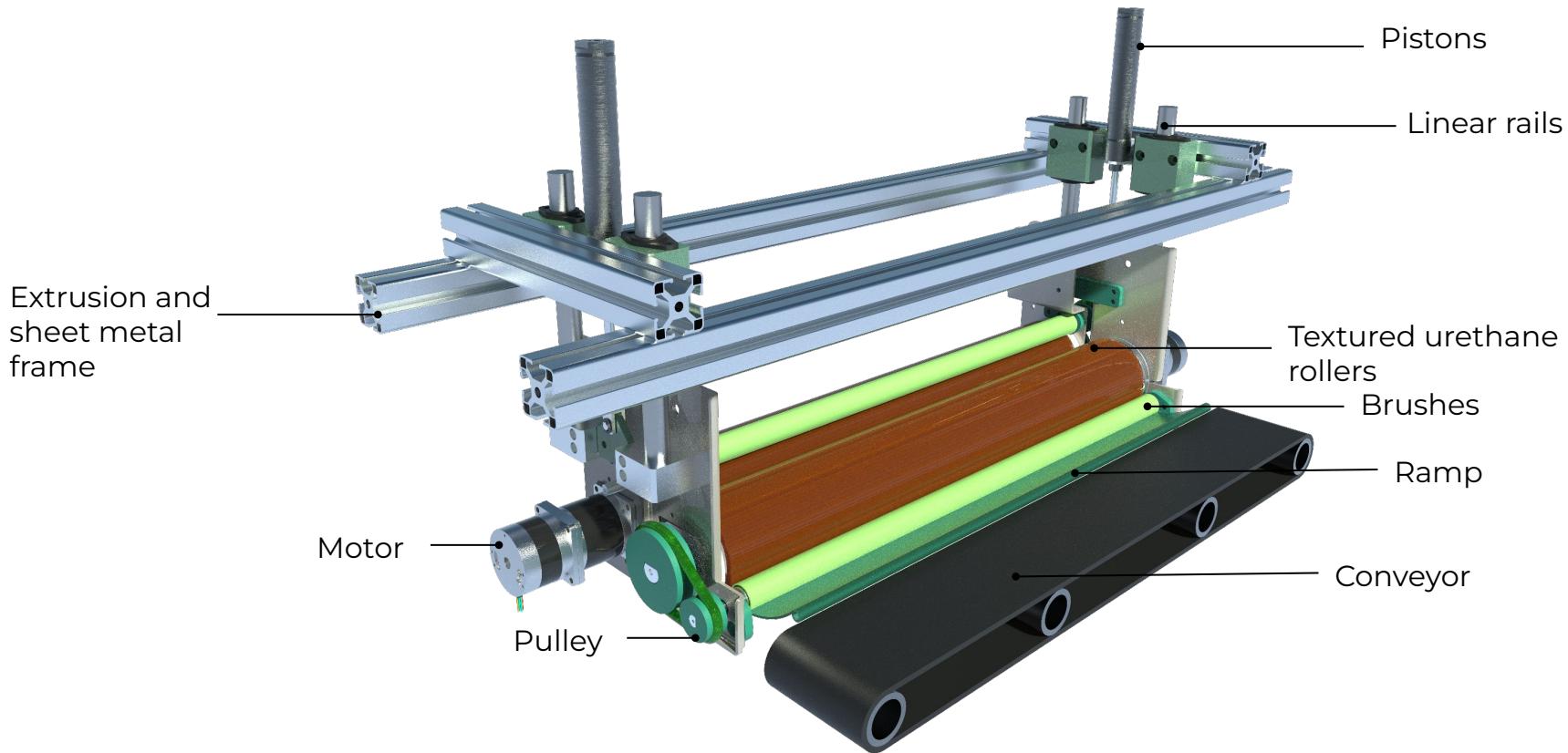


DOWN STATE

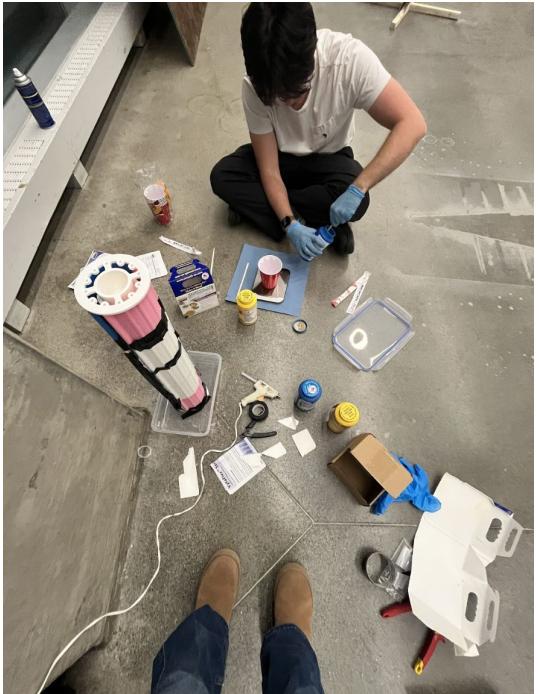


UP STATE

Prototype 2 Design



Building Prototype 2



Casting the 2ft long rollers...



The first one went disastrously



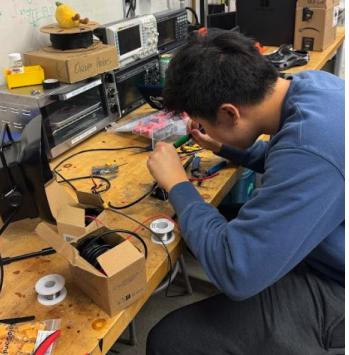
Eventually it was ok

Building Prototype 2



Assembling the frame

Building Prototype 2



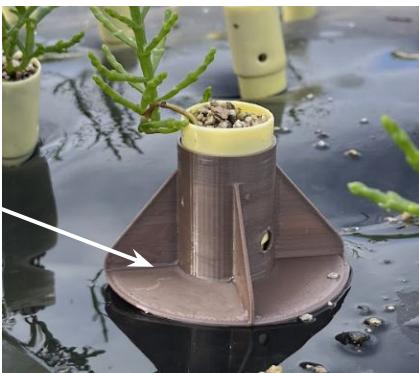
Adding motors and pneumatics

Oahu Trip 2: Fun Drone Shots



Oahu Trip 2: Testing

New, more rigid platforms



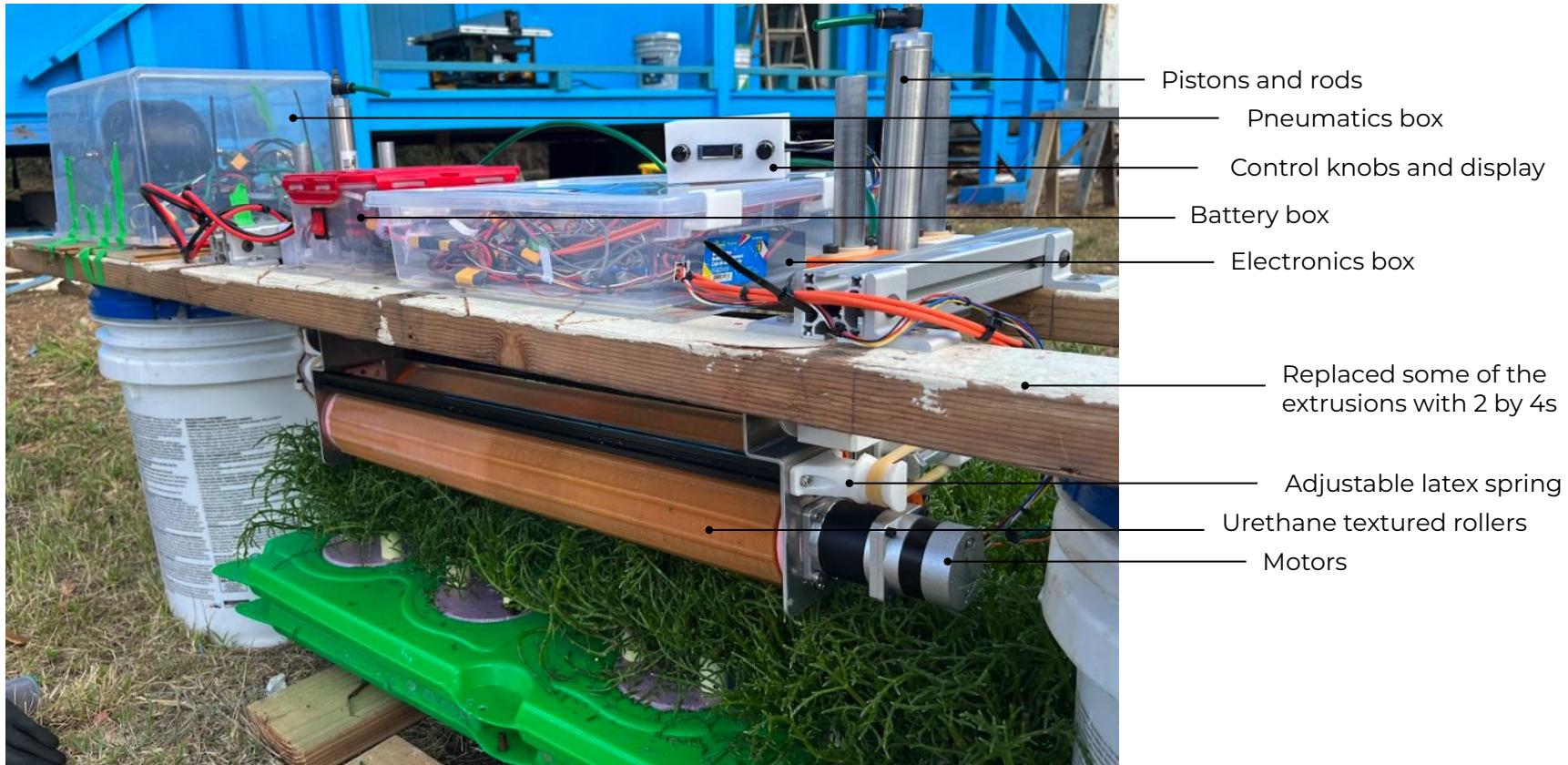
Tried cone attachments

Assembling

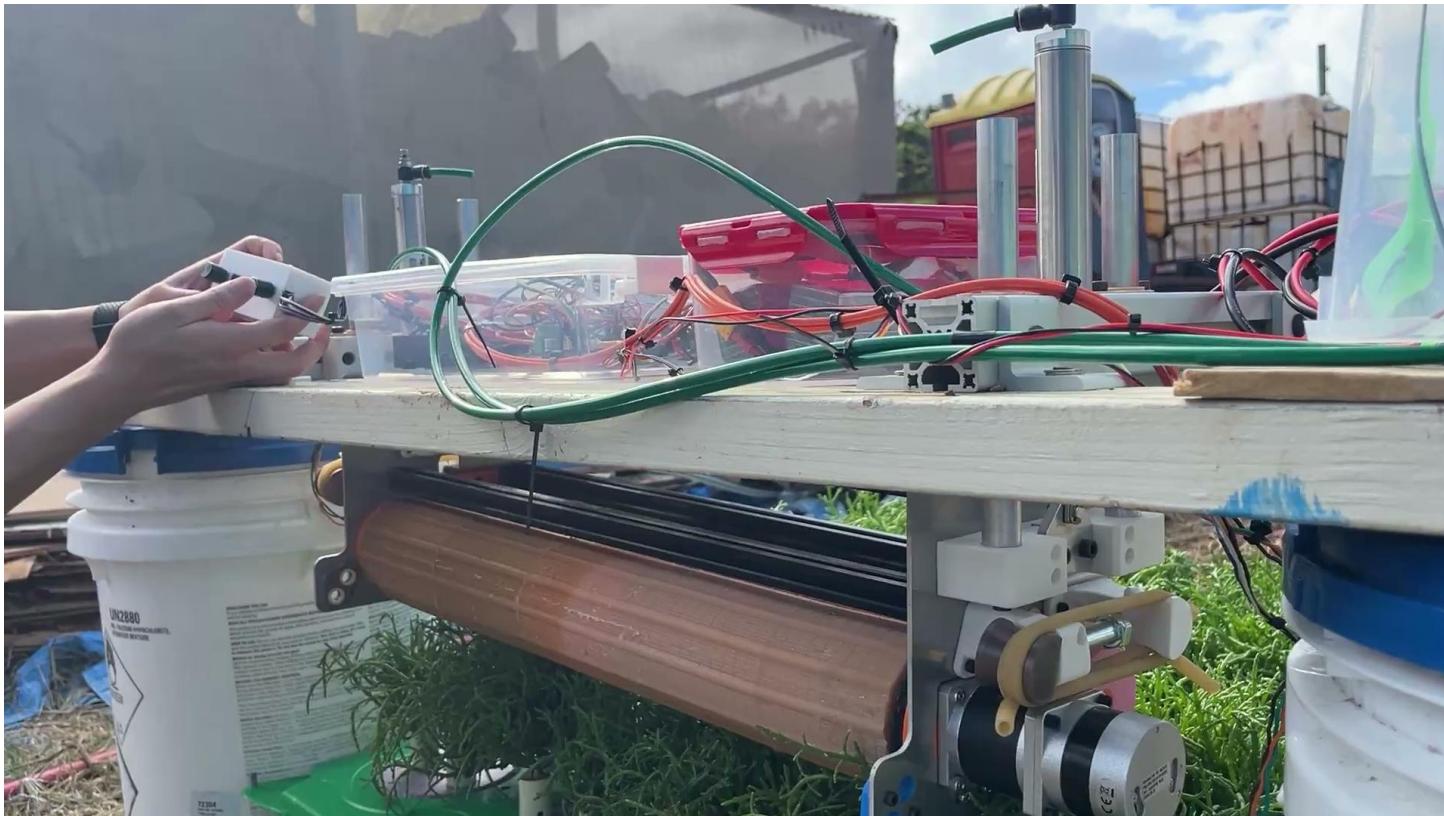


Testing

Oahu Trip 2: Test Setup



Oahu Trip 2: Test Videos

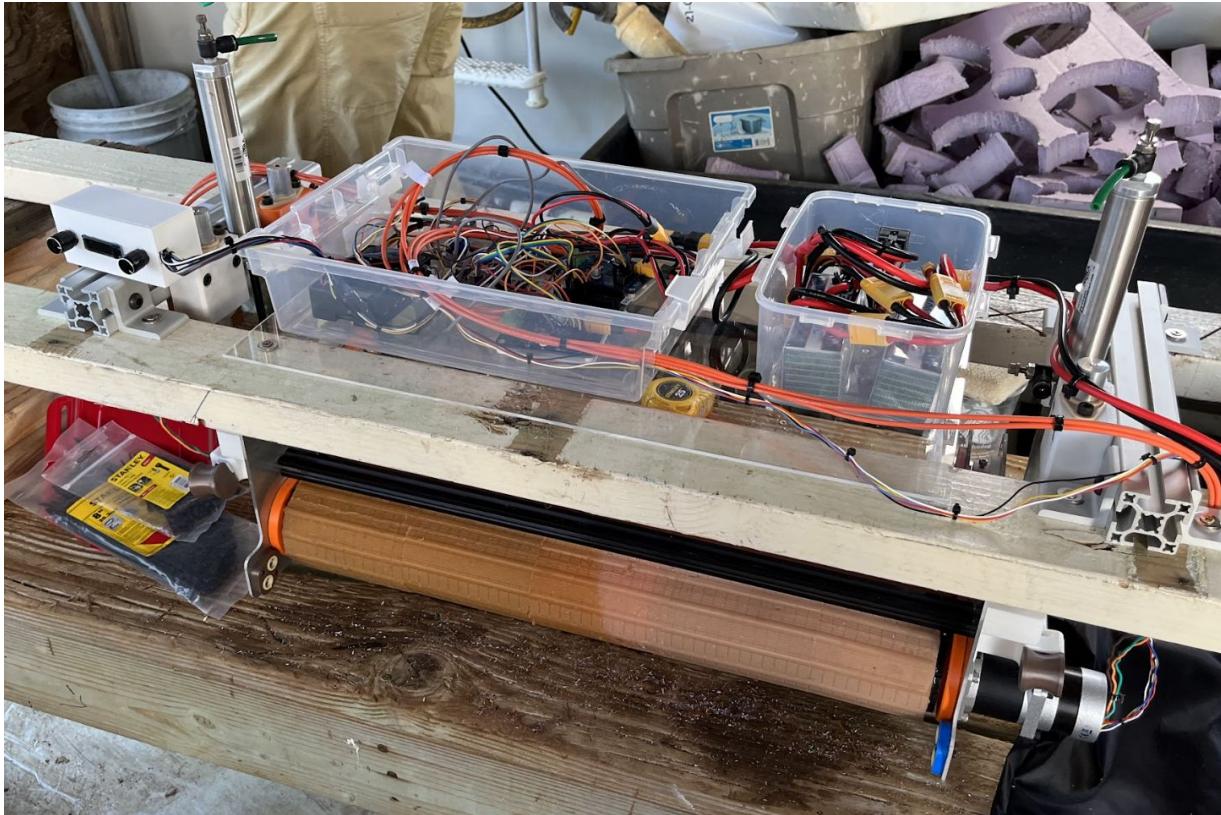


Some motor stalling
-> increasing current limit fixed this

Rollers not completely rigid
-> seeing uneven picking

Not picking enough tips
-> could be too many or too large plants being tested.
Maybe we can design tusks?

Oahu Trip 2: Test Setup

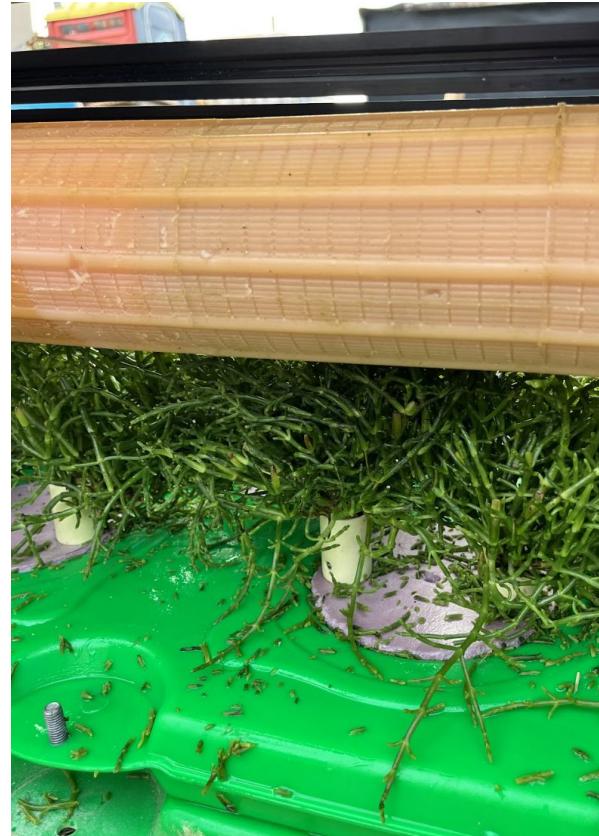


Tupperware for ebox, batteries, and pneumatics were fine this time, but we need to think of designing a rain shield and enclosure.

Oahu Trip 2: Test Videos



Pistons were uneven
(adjusting the valves
were not precise)



Rollers were ok but
not as effective
when wet (better
than last time)

We may not be
getting enough of
the plant (tusks?)

Oahu Trip 2: Pontoon and Cargo Investigation



Pontoons are promising to use for entire mechanism to sit on



Cargo sits pretty high on top of the plants...

Oahu Trip 2: Main Notes

Pinching Force

1 surgical tubing spring per end of the roller was working decently
2 caused the plant medium to be uprooted

Motor

Motor would stall at the point before the medium was uprooted
Found good speed for motor

Pistons

Slightly out of sync and hard to tune

Rain

Realized that it can rain and that all electronics, batteries, etc. need to be shielded

Parts broken

Some 3D printed pieces broke during shipping -> they are now CNC

Frame

Extrusions we brought were not long enough, found 7ft long planks to replace

Plant ideal pick height

Measured freshly picked plants compared to ripe plants

Rollers

New textured grip seems to be working better when wet
Soft urethane gets dirty very easily
Must be reversed on way up, cannot be free spinning

Pontoons

Took measurements, will be useful to have mechanism sit on them

Electrical

Jumper wires were very unreliable
Some board components were falling off (capacitor)

Heat

Solenoid bottom super hot
Converter warm
Motors warm (fixed side is warmer)
Rasp pi got hot

Buttons and Screen

Screen keeps blacking out
Button will double click sometimes

Logging

Was not logging information when not connected to wifi

Knowing there's only 3 weeks left...

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
STAGE	TASKS	September				October				November				December				January				February				March					
		9/1	9/8	9/15	9/22	9/29	10/6	10/13	10/27	11/3	11/10	11/17	11/24	12/1	12/8	12/15	12/22	12/29	1/5	1/12	1/19	1/26	2/2	2/9	2/16	2/23	3/2	3/9	3/16	3/23	3/30
Develop Conceptual Designs	CAD of ideas																														
	EE/FWE block diagrams, component identification																														
	Propagate plants																														
Prototype 1 - Component Validation and Design Downselection	CAD Design for Proto Lock																														
	Order/fabricate parts																														
	Build prototype																														
	Test prototype																														
	Visit Oahu for testing																														
Prototype 2 - Design Validation 1	ME Changes																														
	EE Changes																														
	FWE Changes																														
	SWE Changes																														
	Order/fabricate parts																														
Prototype 2 - Design Validation 2	Design and fabricate testing set up																														
	Build prototype																														
	Test prototype																														
	ME Changes																														
	EE Changes																														
Final Design - Changes and Testing	FWE Changes																														
	SWE Changes																														
	Order parts																														
	Modify prototype																														
	Test prototype																														
Final Design	Visit Oahu for testing																														
	Last changes																														
Final Design	MTE Capstone Symposium																														

Next steps

01/21 - 02/11

Pontoon and Cargo

- CAD pontoon and cargo design
- Consider box vs bag cargo

E box and enclosure

- figure out footprint and lock boards
- first draft of enclosure and rain shield design

Pneumatics

- rain shield design draft
- maybe add fan if we have time

ME Parts

- order 7 ft long extrusions
- order the rod for the brushes and complete brush design
- file the CNC keyway
- consider tusks

Screen and buttons

- try to reproduce problem and verify robustness

Hardwiring

- work on shield/socket for hardwiring @kevths
 - make sockets for gate driver pins
- begin hardwiring
- work on controller board for symposium

Firmware

- add distance sensor

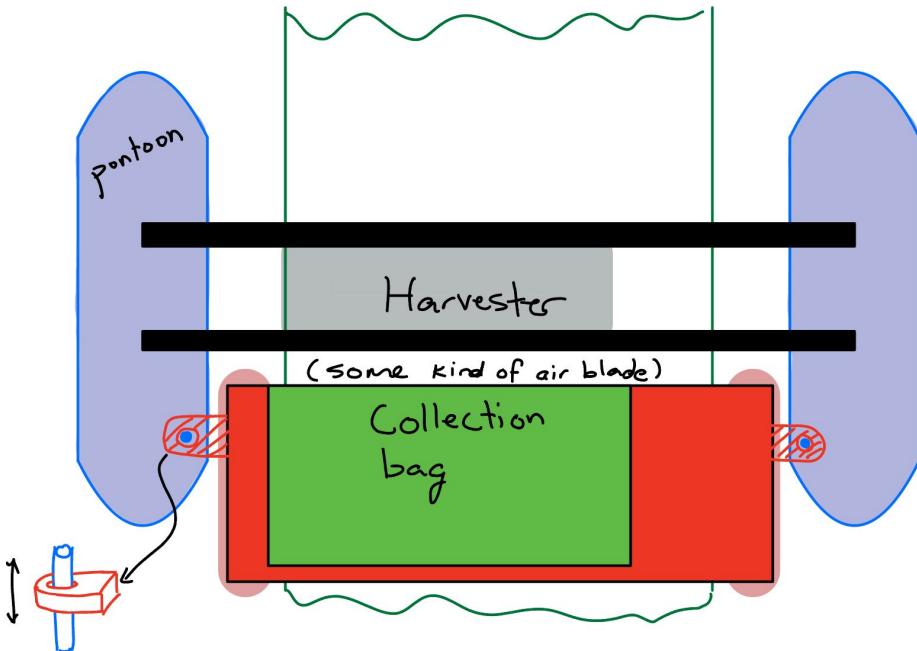
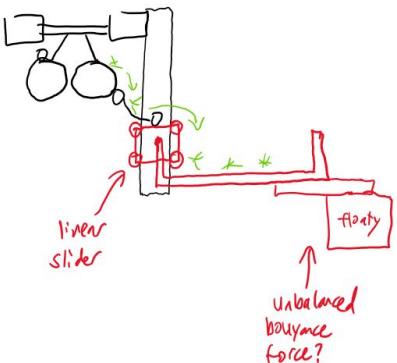
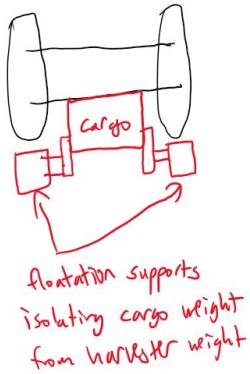
April Tag

- look into how to implement april tags

#1 Pontoon and Cargo



#1 Pontoon and Cargo



#2 Thoughts on enclosure, rain shield, venting design?

For electronics, battery, and pneumatics

#3 Thoughts on using fans (with air funnel attachment) to blow off tips into cargo instead of conveyor and brushes?

#4 Thoughts on tusks?

Thank you!