



# Hydroponic Raft Dishwasher

# Presented issue

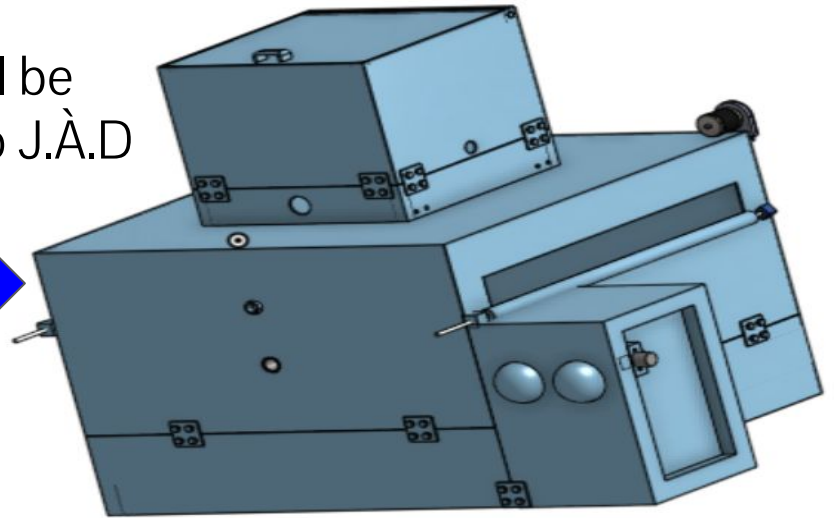
Design a time-efficient cleaning devices that will remove the algae from the hydroponic rafts while reducing the time of labour for Growcers Hydroponic farms.

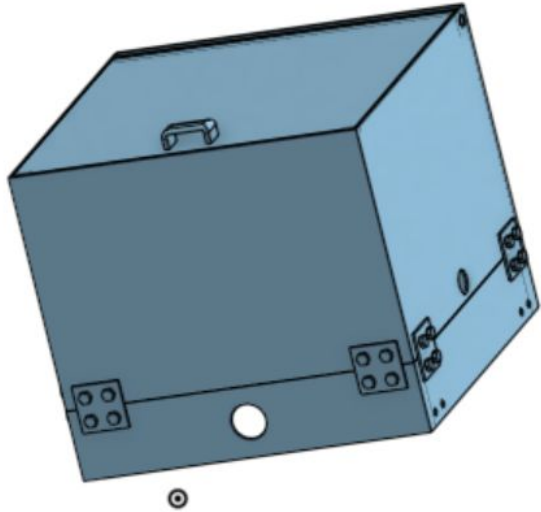
# J.À.D

Just - A - Dishwasher



The Raft will be inserted into J.À.D





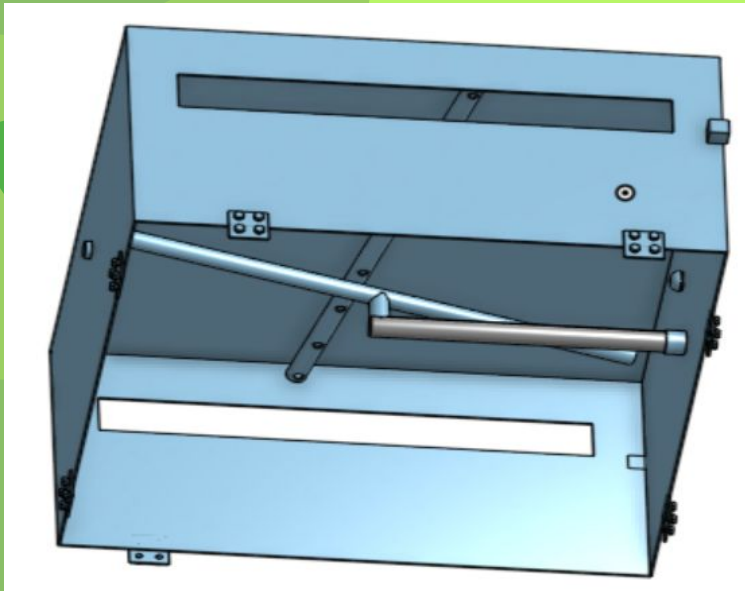
## Prototype Heating System

- Goal: learn about the heat required to kill Algae
- Analytical prototype
- 60 degrees Celsius
- 7KW/h



# Washing system

- Goal: Learn and determine required pressurizer
- Comparison to other dishwashers
- 150psi required

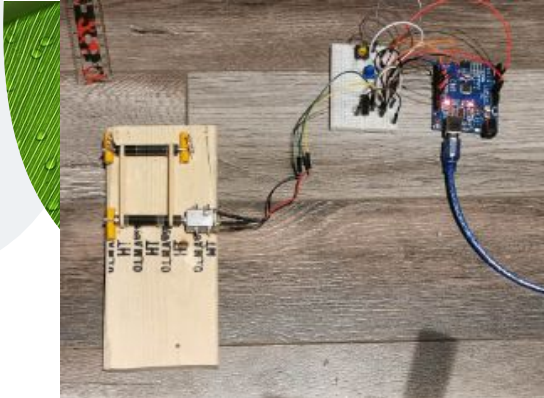
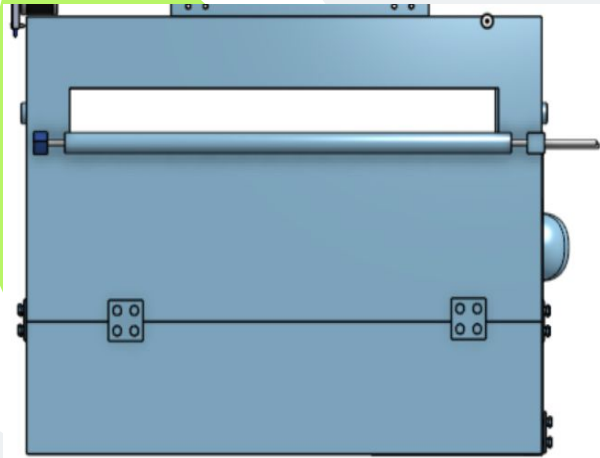


Comparison table with Dishwasher competitors

<u>Type of cleaning products</u>	<u>Name of Benchmarked Product</u>	<u>Hours per raft to clean (rafts / hour)</u>	<u>Autonomous (yes or no)</u>	<u>Rate of error (clean %)</u>	<u>Physically demanding (1-10)</u>	<u>Life expectancy (years)</u>	<u>Cost (\$)</u>	<u>Quality (Review stars)</u>	<u>Dimensions (in)</u>	<u>Quantity of water (L/1 cycle)</u>
<u>What Growcer is currently doing</u>	Brushes	2.6 - 3.4	no	N/A	8	N/A	Labour cost	N/A	N/A	Unknown
<u>1. Dishwasher</u>	Hobart	40 (1-6 min per cycle)	Yes	99.999	3 (once every 800 washes clean the pump)	10	8,716	4	18 x 26 x 27	3.04
	LG (Front Control, QuadWash, 24")	0.4	Yes	99.999	2	12	648	4.5	23 ¾ x 33 ¾ x 24 ¾	10.85
	Bosch (100 series 24")	0.44 - 0.5	Yes	99.999	2	10	650	4.4	33 ¾ x 23 ½ x 22 ½	12.11
	Samsung (Stormwash)	0.357 - 0.588	Yes	99.999	2	10	950	3.9	23 ¾ x 33 ¾ x 24 ¾	13.25

# Feeding System

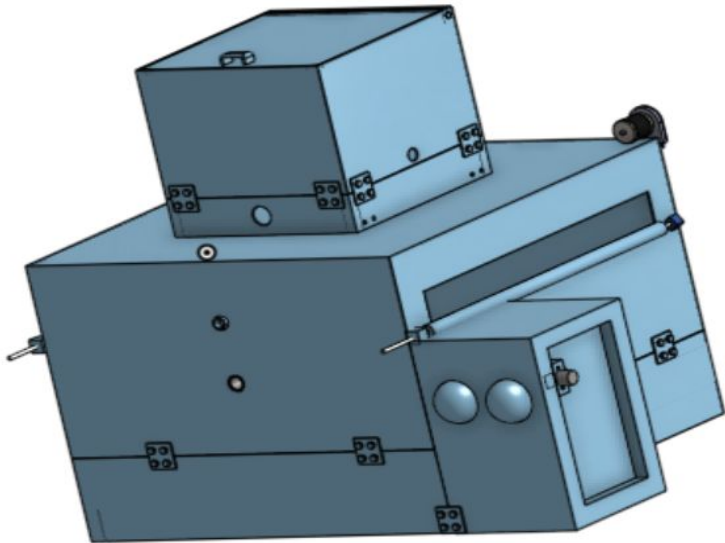
- Goal: To determine if our system was feasible by reducing risks
- 2 physical prototypes
  - 1- Determine feasibility
  - 2- Determining automation





# Assembly

- Standardised parts reduce costs
- Accounting for feedback
- Simplicity of operation
- 2 button control system



2 minutes of manual labour.  
90% cleanliness

