



RollIt!

Tala AbuSoud & Raya Thawabe
Hardware Project
Dr.Raed Qadi



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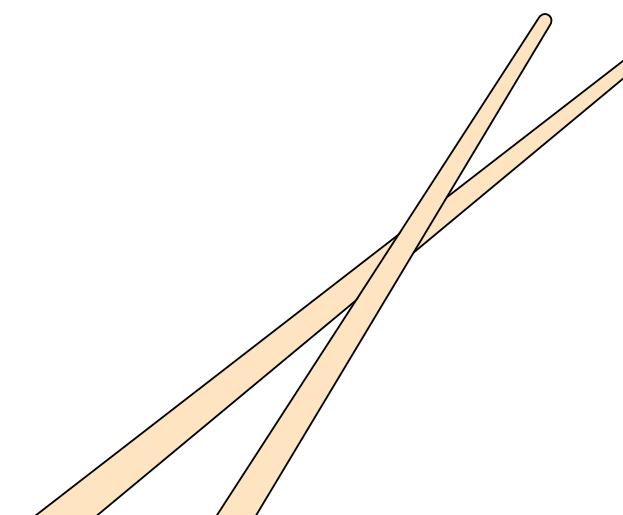
Mechanism & challenges

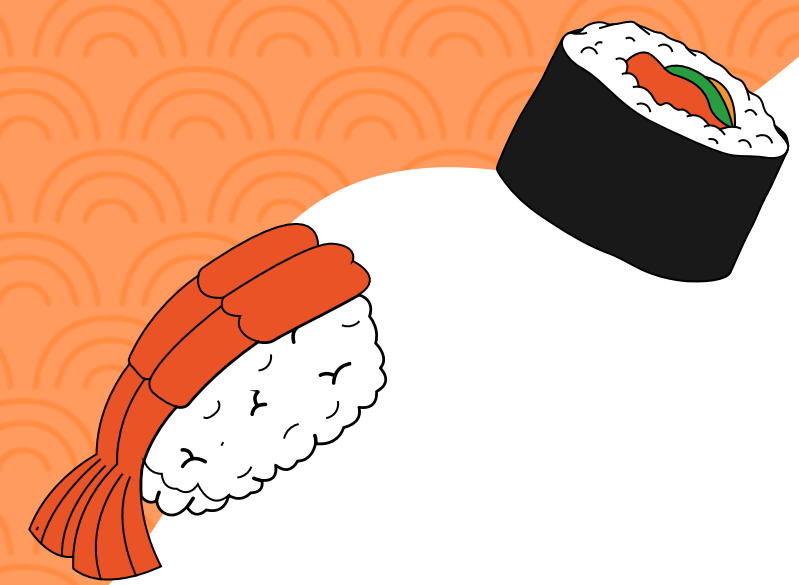
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05

Future work

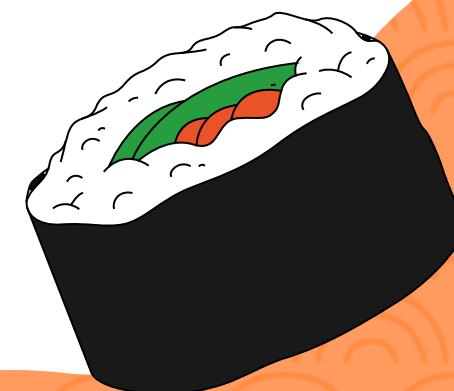


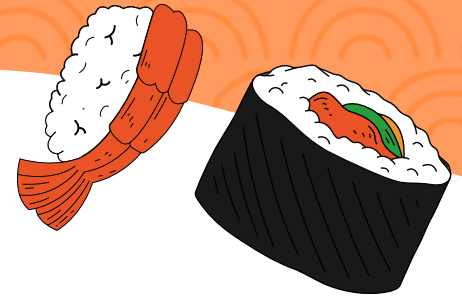


Main Idea

Sushi Production Line

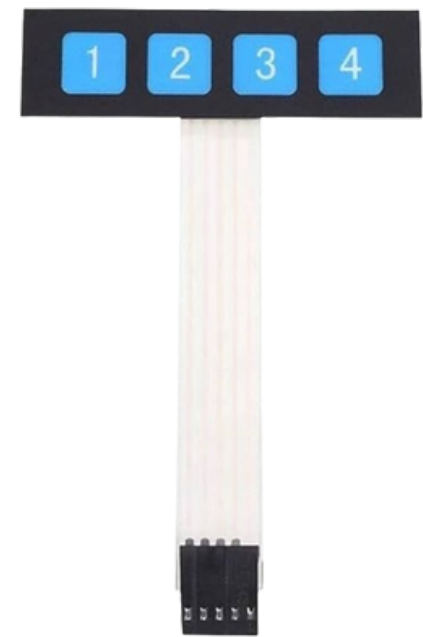
From paper dispensing to
rolling





Features

Input/Output Devices

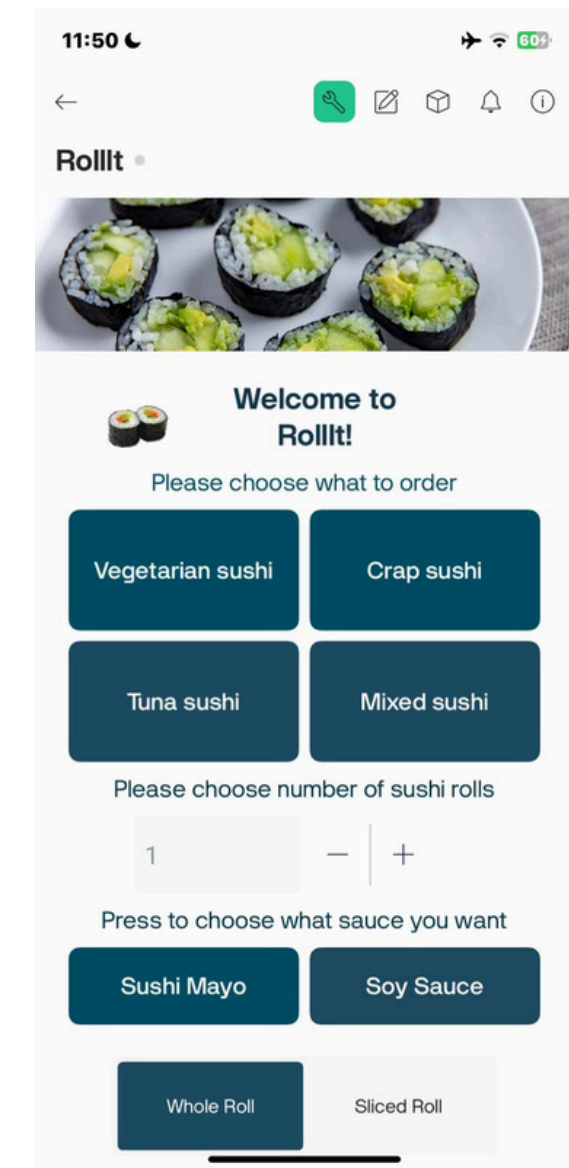


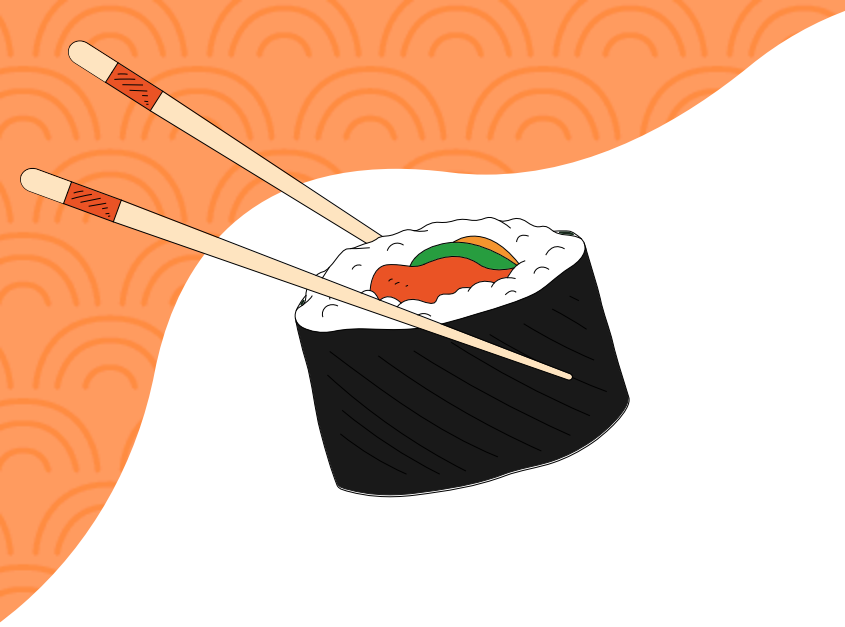
20*4 LCD +
I2C

4*1 Keypad

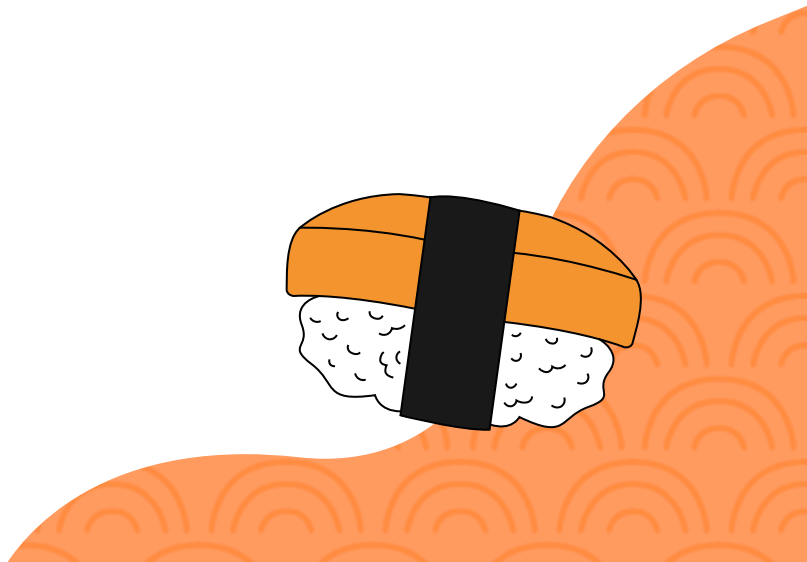
Customized options

Mobile Application

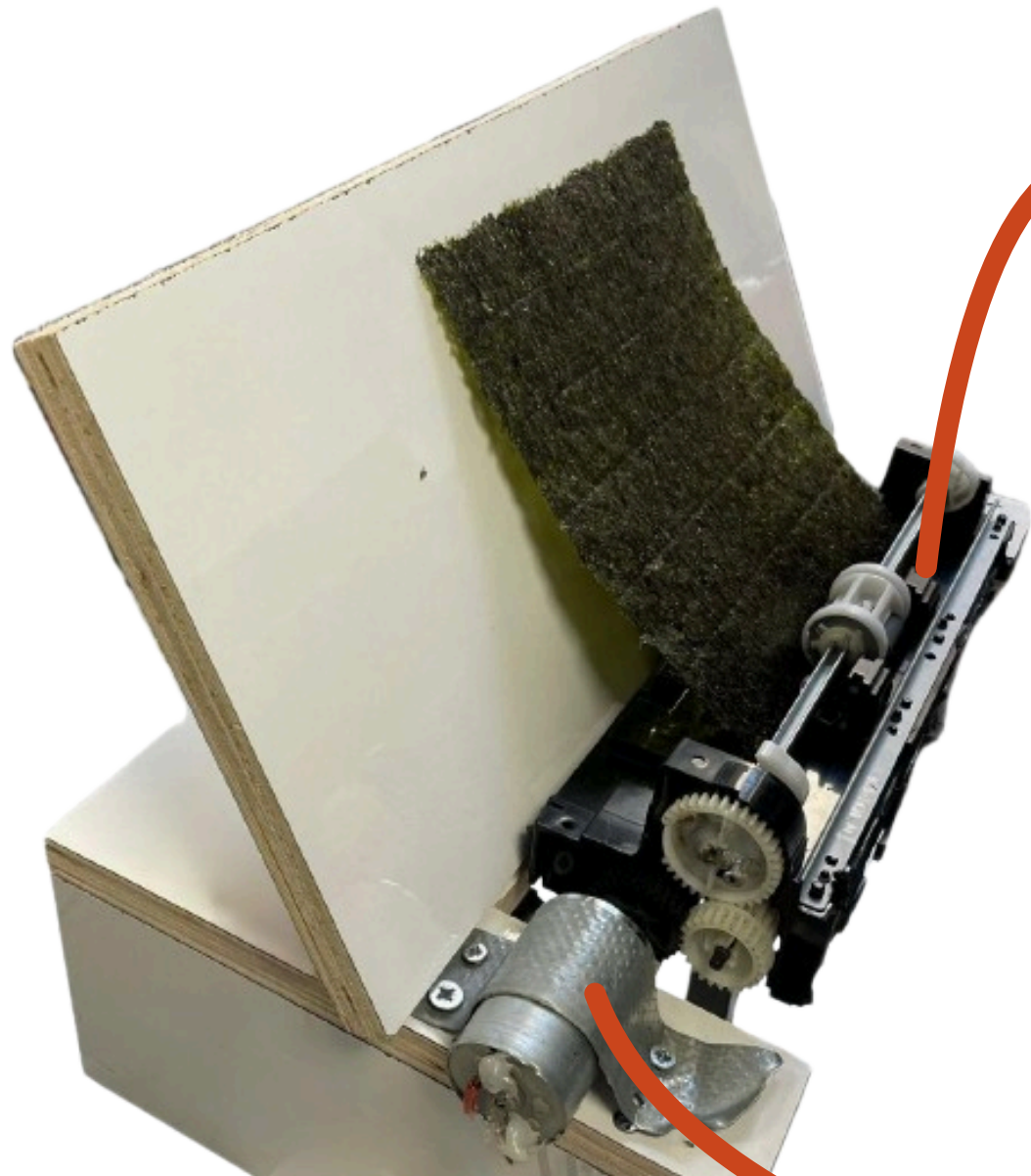
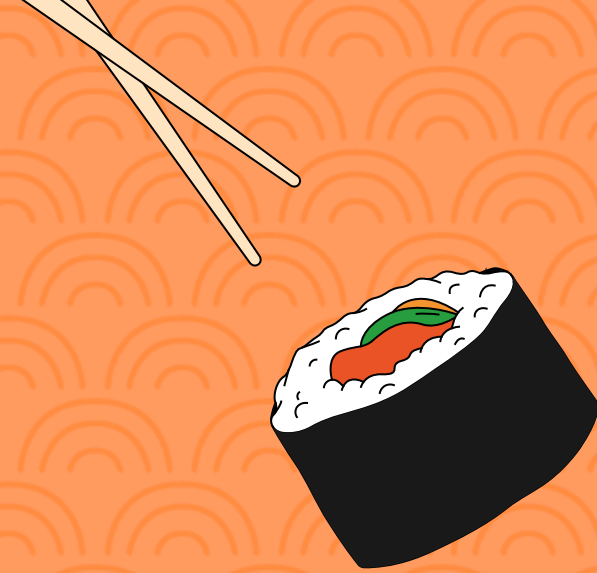




Mechanism



Paper Dispensing

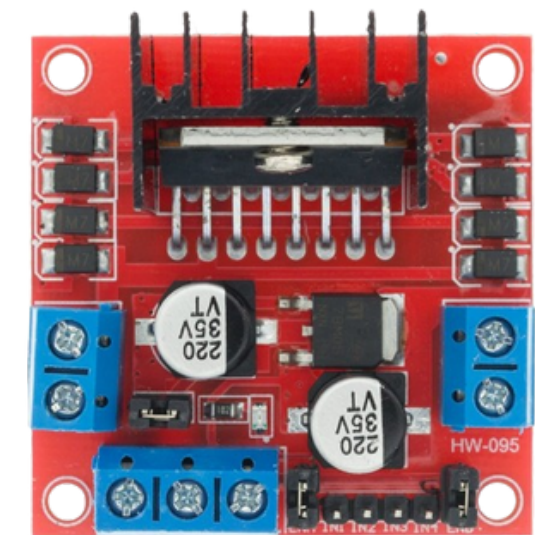


HP LaserJet
P1505 printer



DC
Motor

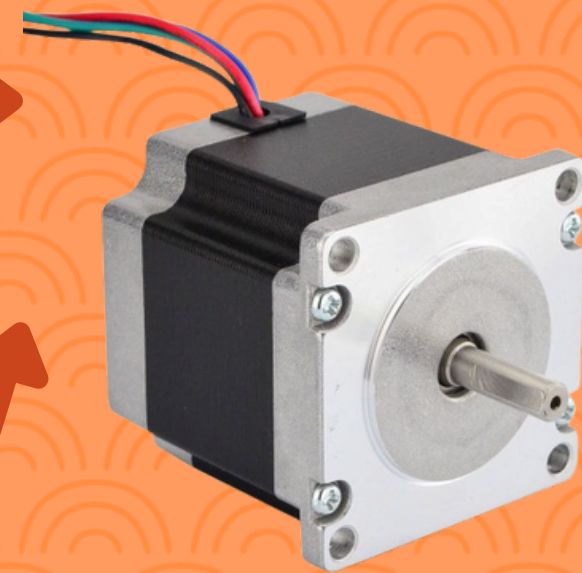
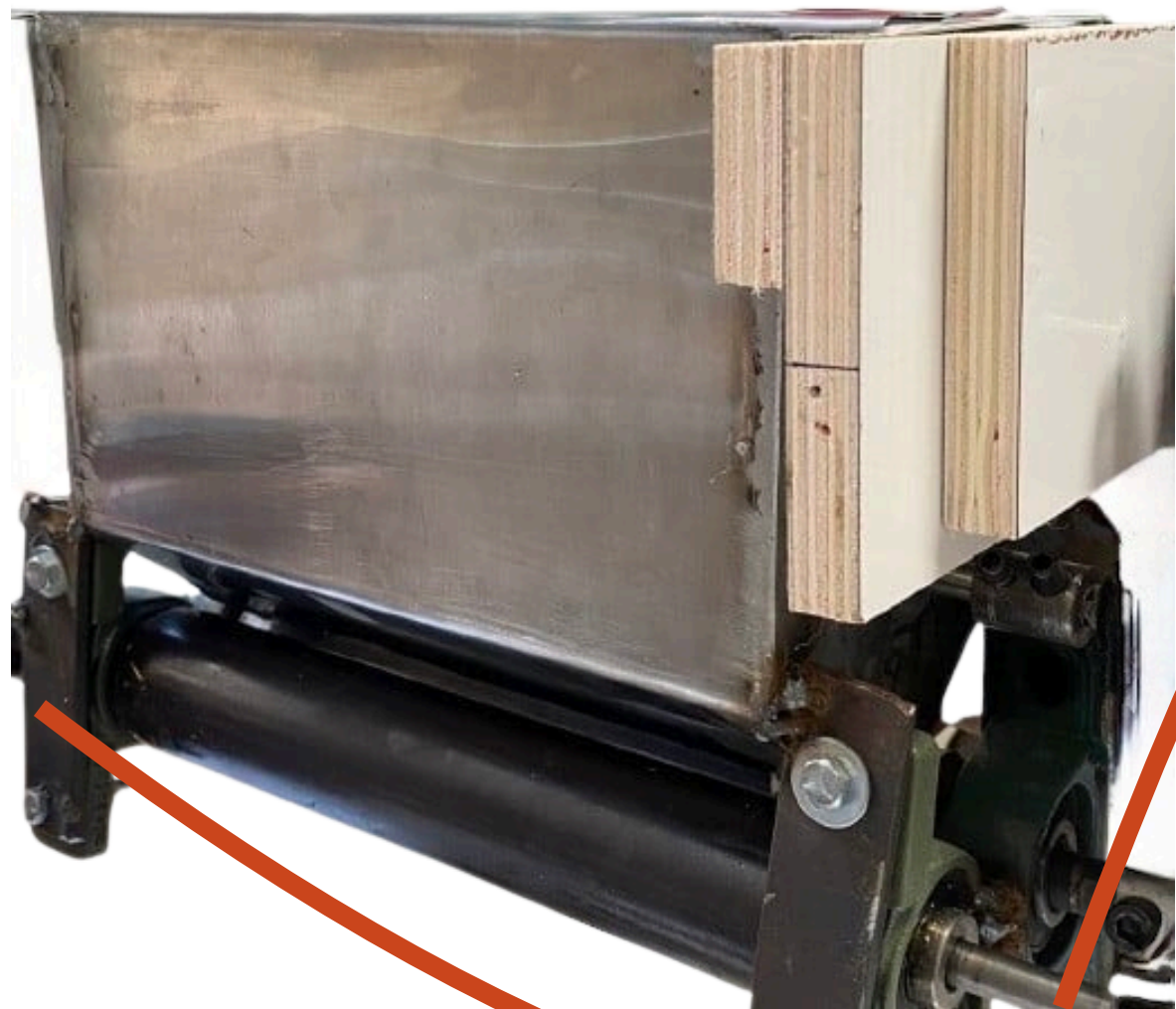
+



H-bridge
L298N drive



Rice Spreading



2X Stepper
Nema 23



2x Driver
5 A

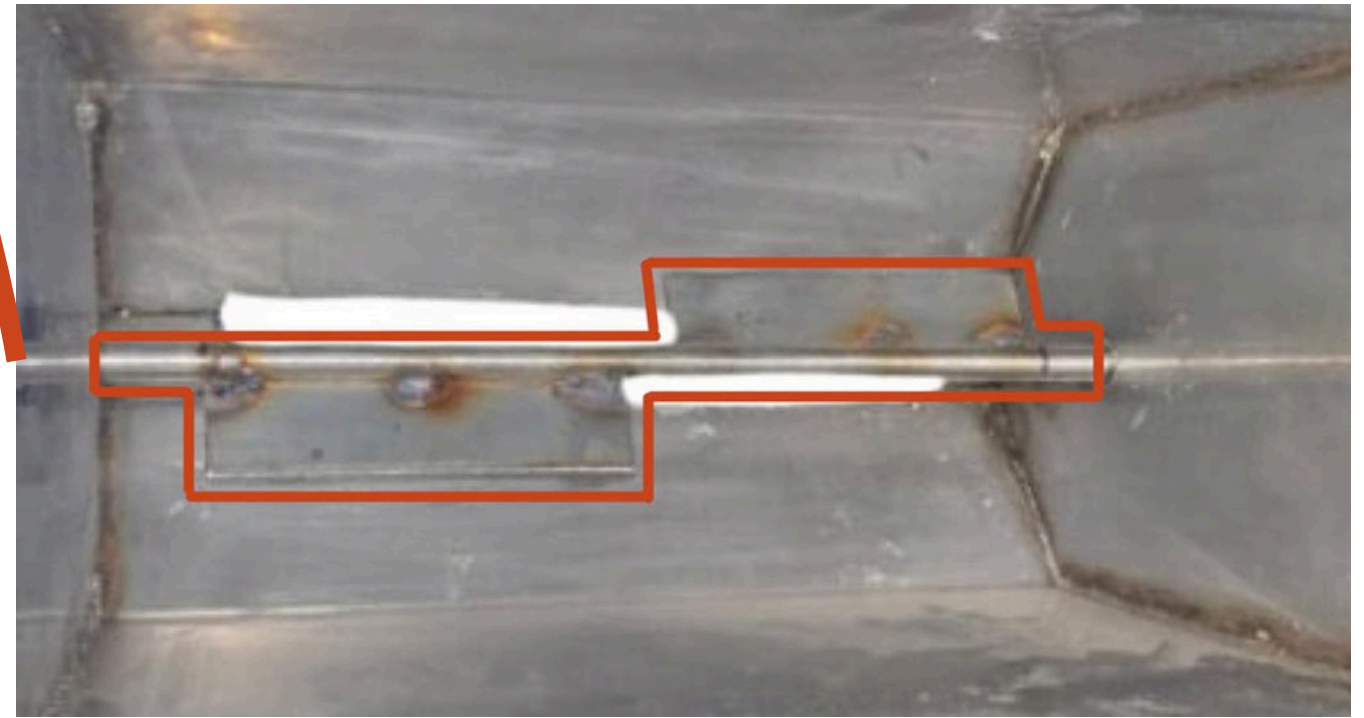
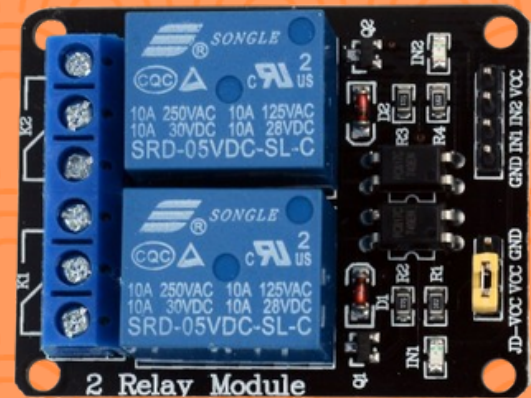




car wiper motor

+

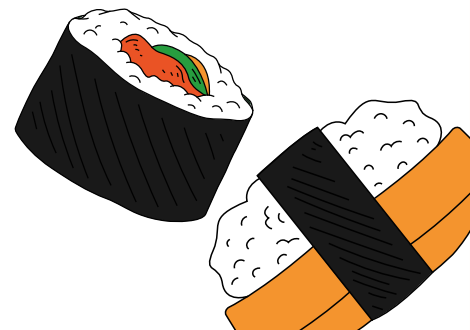
2 channel Relay



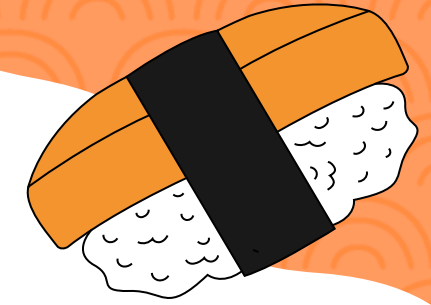
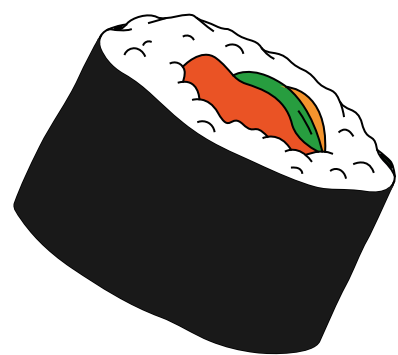
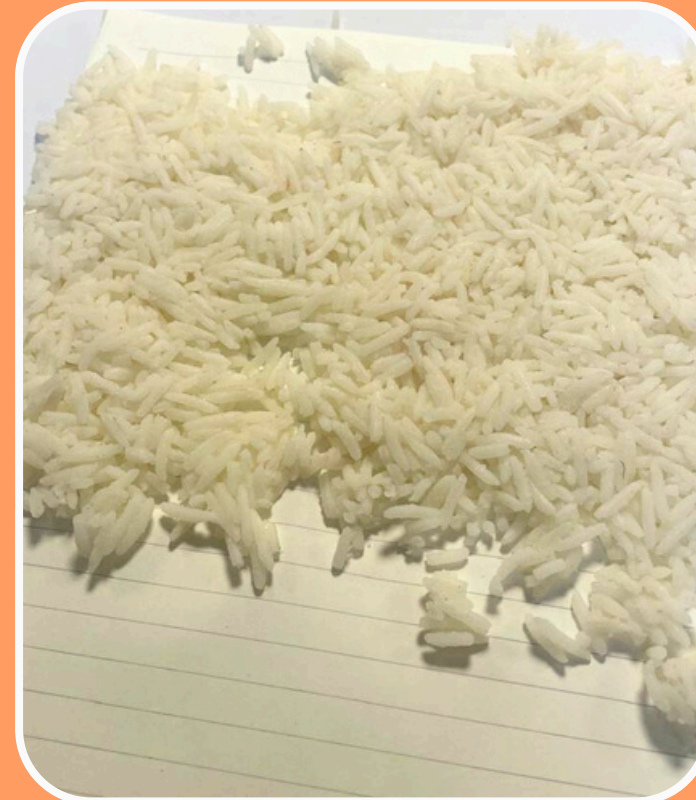
Rice Compression mechanism

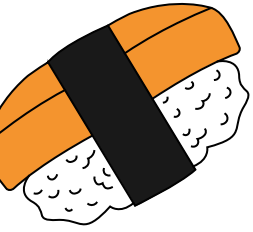
+

Bearings



Rice Process

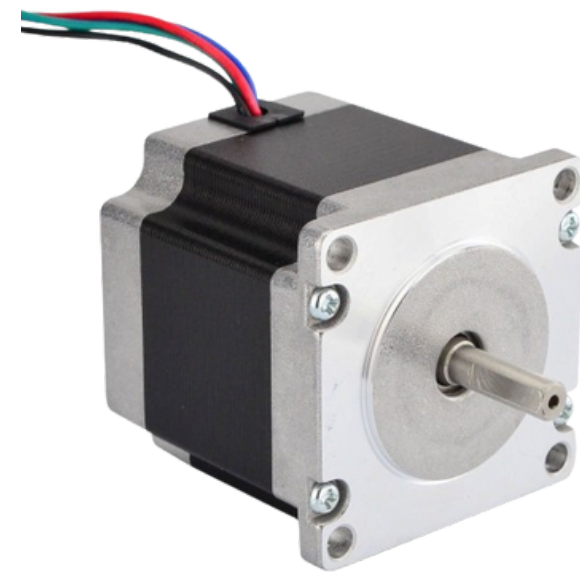




Ingredients Dispensing



3D Printed dispenser
(8 wings)



Stepper Nema 23

+



Driver 5A

3X

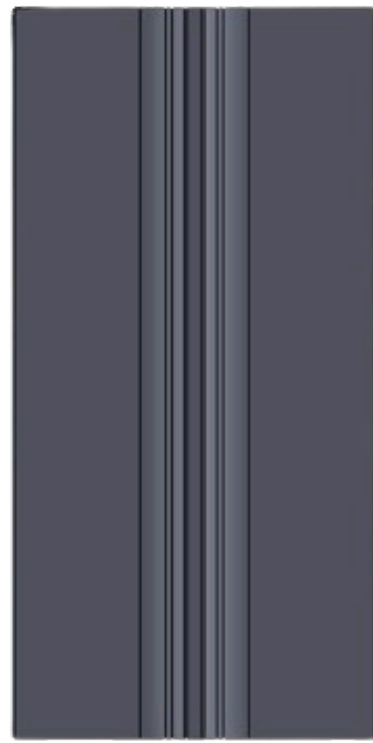
Vegetables

Tuna

Crap

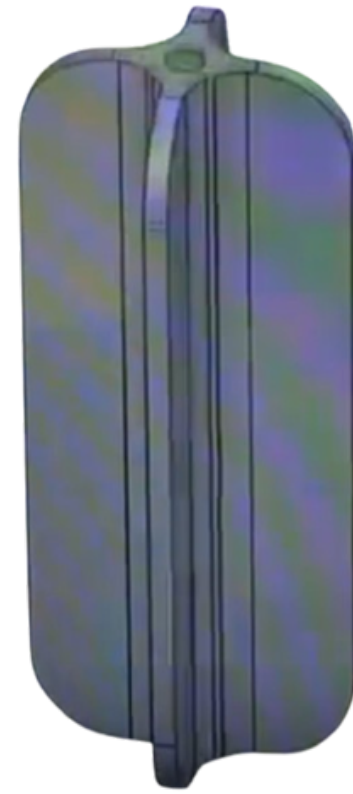


Rotating Paddle - 3D



Design 1

4-wing structure with rectangular edges



Design 2

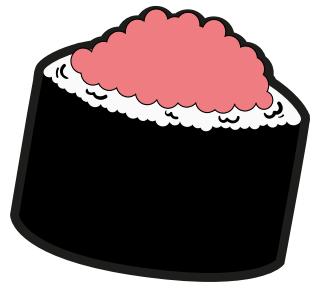
4-wing structure with rounded edges



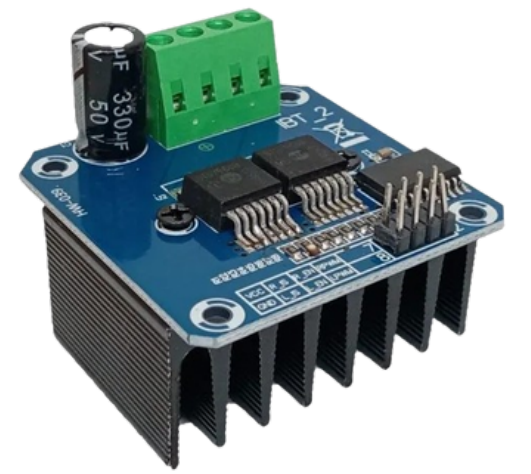
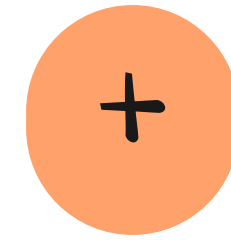
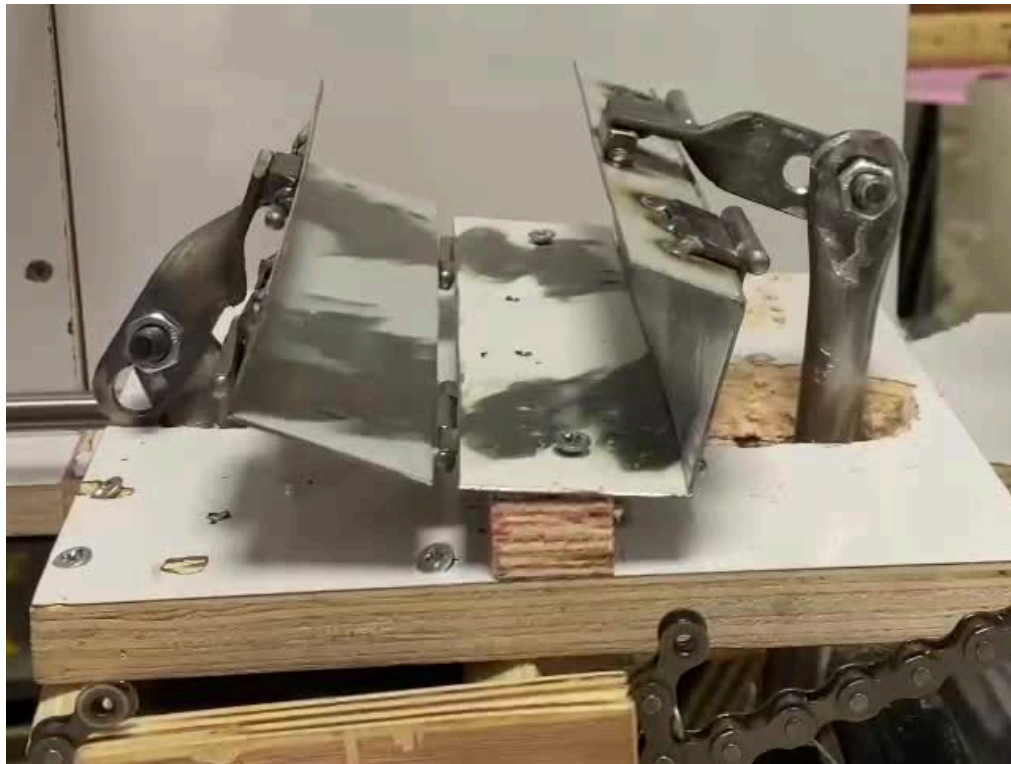
Design 3 - Final

8-wing structure with rounded edges



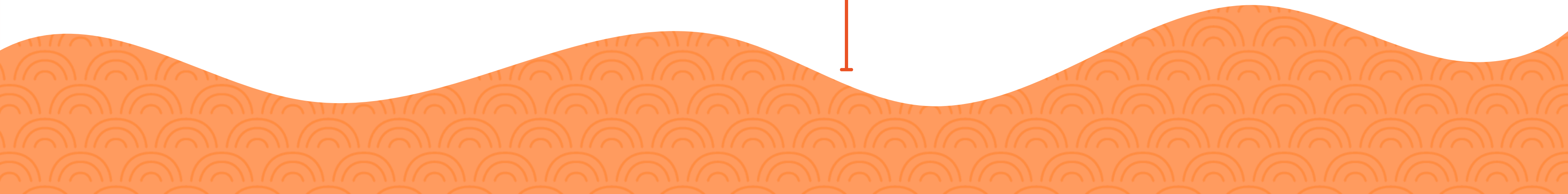


Rolling Satge



2X car wiper motor

2X Ibt2 motor driver h-bridge



ROLLING PROCESS



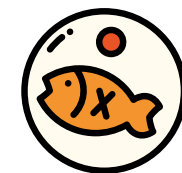
Step 1

Prototype



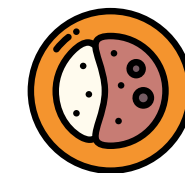
Step 3

Making Prototype Alive



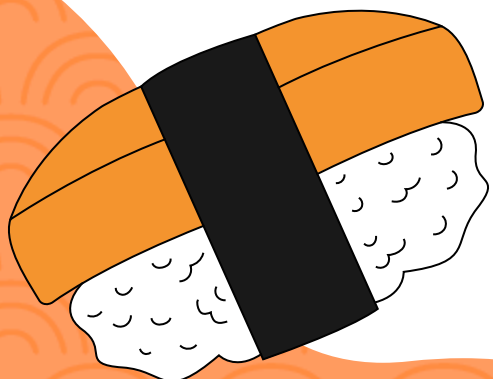
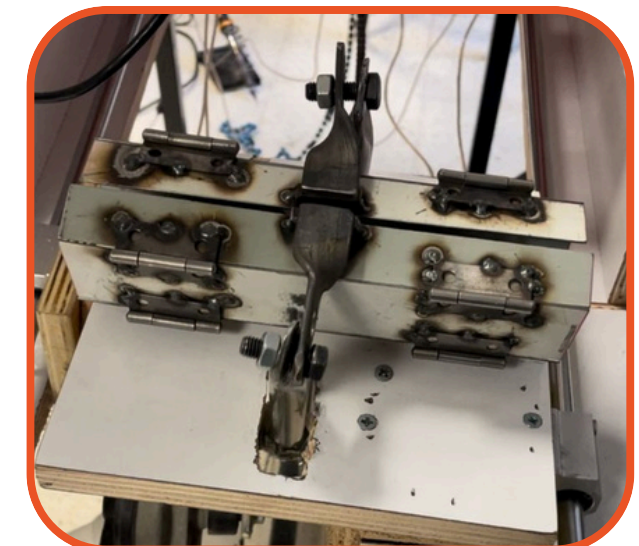
Step 2

Testing Prototype



Step 4

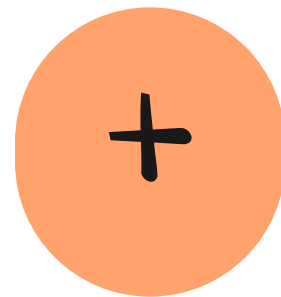
Jupiter is the biggest planet



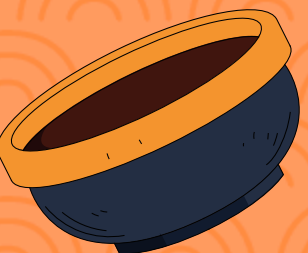
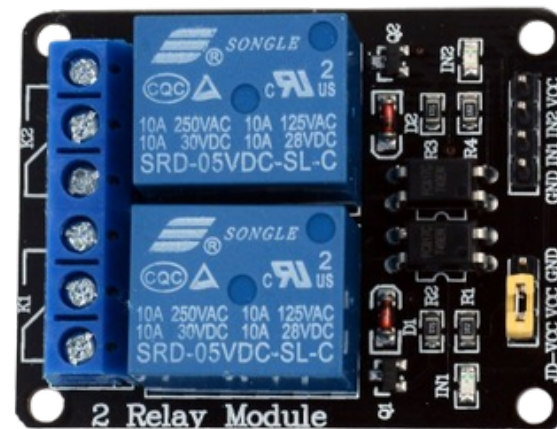
Cutting process



car wiper motor



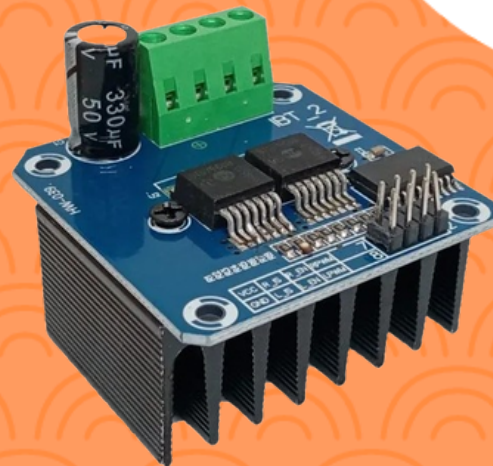
2 channel
Relay



Belt Part

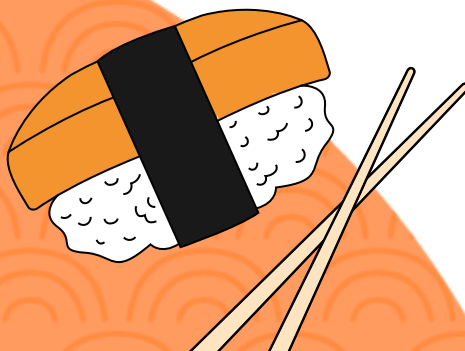
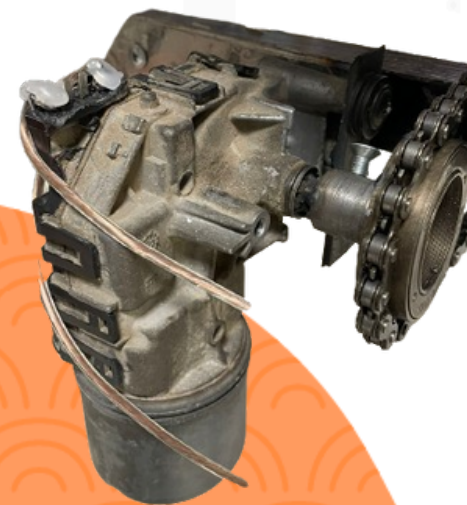


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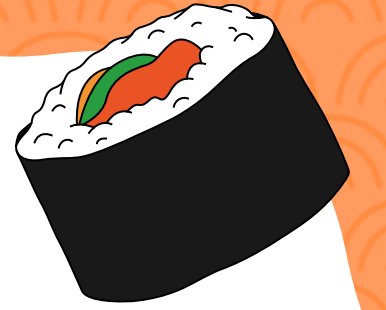


Car wiper motor

Ibt2 motor driver h-bridge



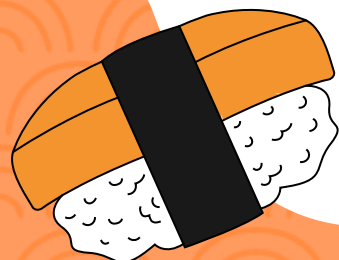
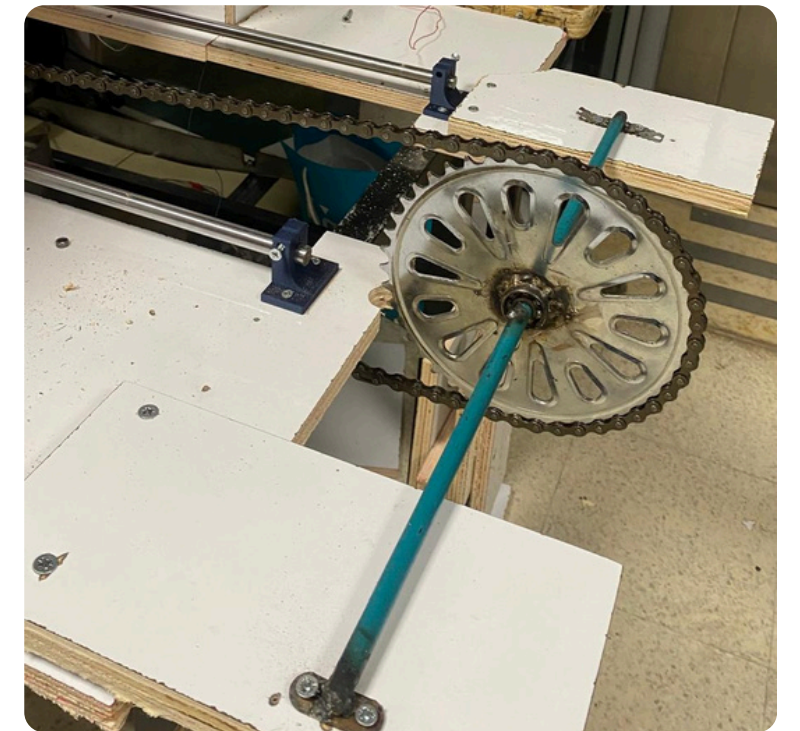
Before & After



Before

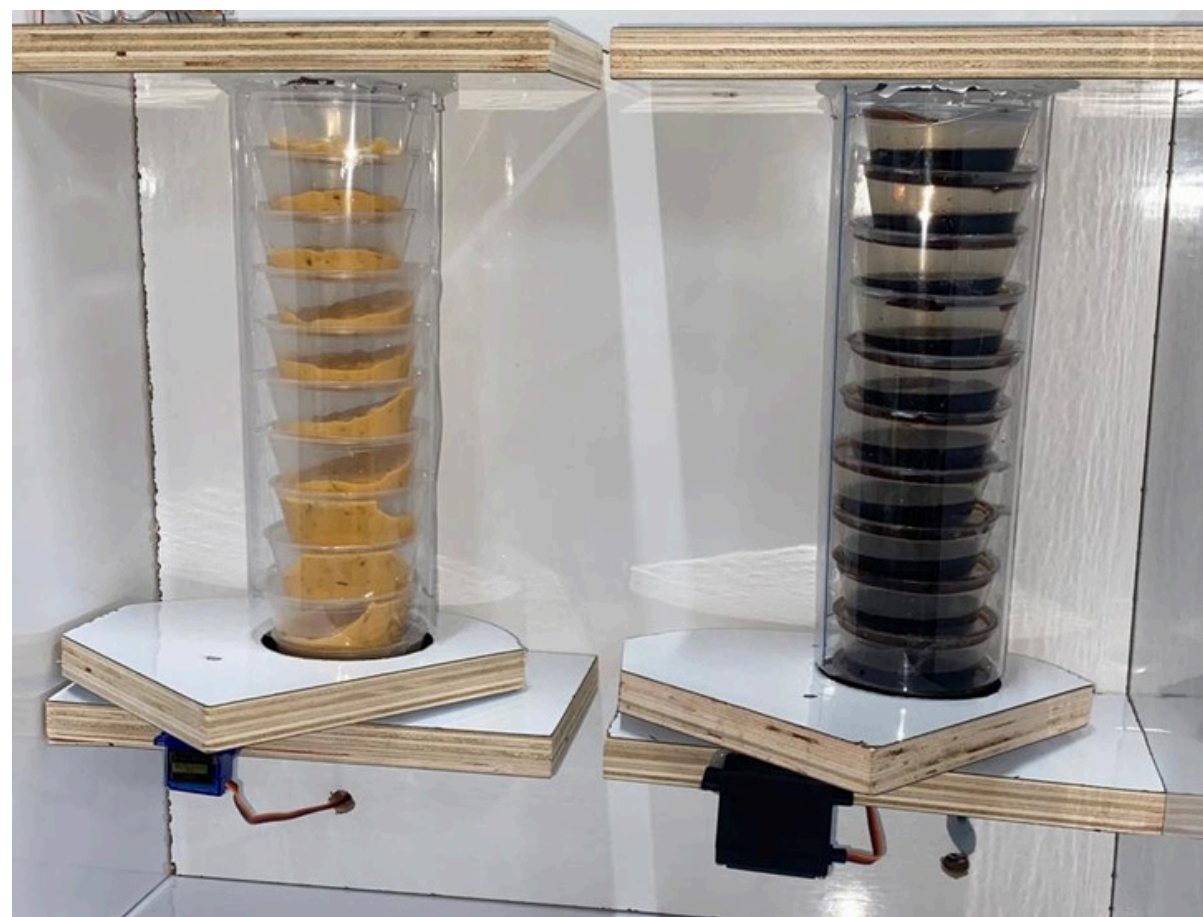


After





Sauces



2X Servo Motor

Sauce's selection



Sensors



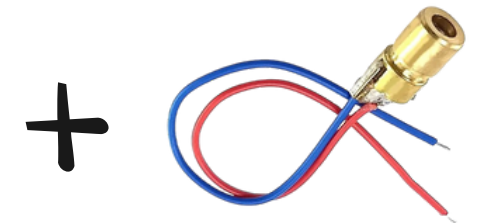
IR Sensor

Rice & Belt



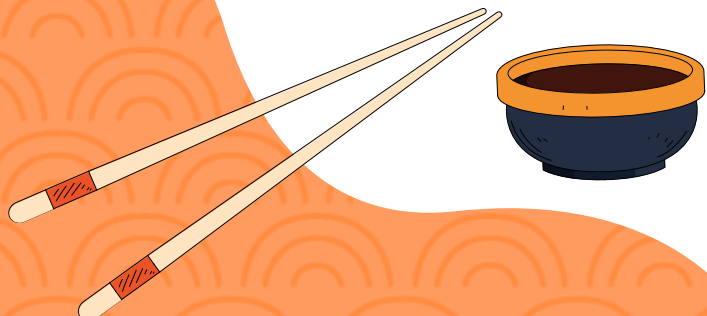
LDR + Laser

Ingredients



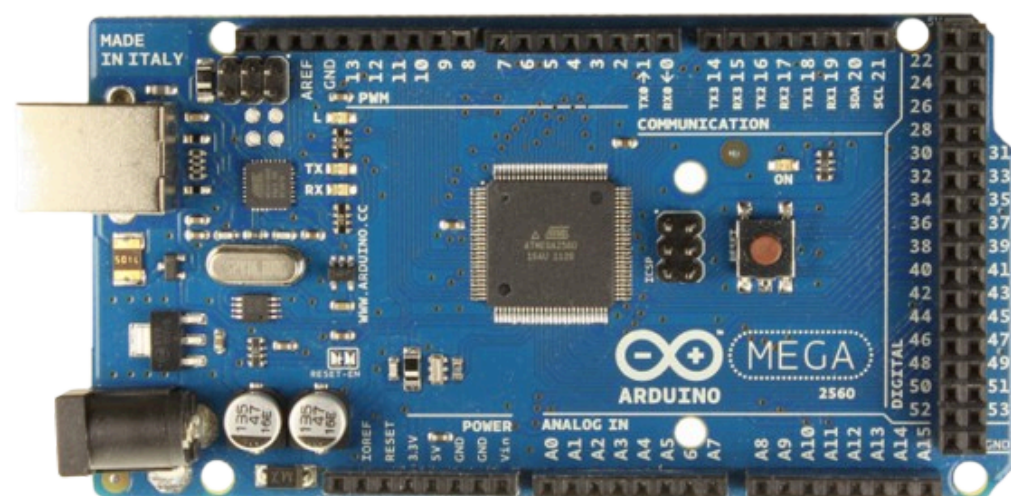
Ultrasonic

Filling

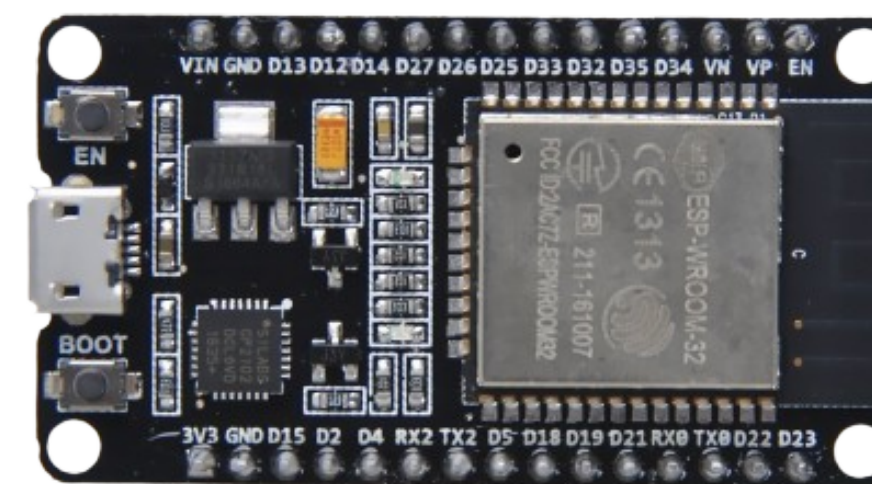




Microcontrollers



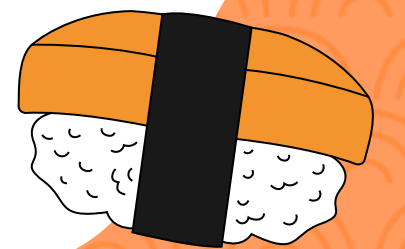
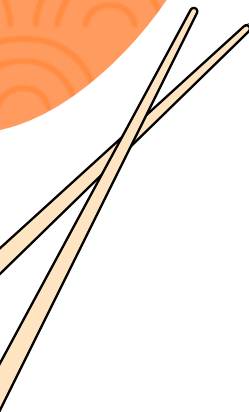
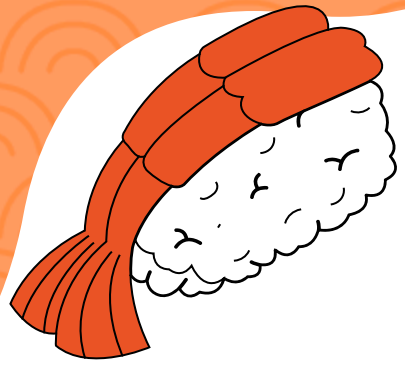
Arduino Mega



ESP 32



Final Result





Constraints

- Waste of food
- high cost of hardware modules.
- The weight made it difficult to find suitable components ,since majority of the project was from iron.

Future Work



1

More ingredients
and more
customized
options

2

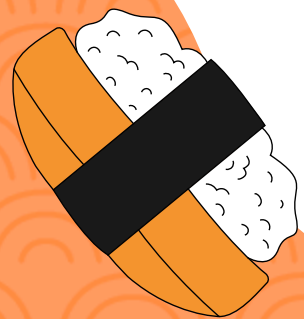
Power Failure
Recovery Using
Real-Time Clock
and Data Logging

3

Switching out
metal components
for lighter, less
expensive
alternatives

4

Cleaning
system





Thanks for listening

Any questions?