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Meeting Time: 3:10 - 4:31

1

1st Recorded Project Meeting in Journal 2/3/2023

- Found similar products, linked in shared drive

Taste Two → Very similar product, does what we want ours to do

Improvements: Adding a web-based receipt functionality
recipe 2/3/2023

UC Florida Final Project: Similar but w/ 4 Spice options, rotates

UCLA Auto spice dispenser: Similar but w/ 8 Spice options, does not rotate
10 2/3/2023

- Seems like most projects follow Taste Two design
- Looking for ways to add to functionality
- Still floating idea of water mineralization

Timeline for Proposal → Team unofficial deadlines

Needs, Objectives, Requirements → Due by Monday 6th, February

Literature & Tech Survey → Due by by Feb 8th, Wednesday

Proposed Work → Due by February 13th, Monday

Engineering Standards → Due by February 15th, Wednesday

↳ Ind. executive summary

Lecture 2/6/2023

→ Distructions of a team

- Lack of trust
- Fear of Conflict
- Lack of Commitment
- Avoidance of Accountability
- Inattention to Results

8:00p → Met to finish Needs Statement

8:15p 2/6/2023 Met for meeting

↳ Finished Needs, objectives, & Requirements

↳ Realized that we need a good name

↳ Goal before proposal, find better name

Finished 9:25pm

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February 8th, 2023 - Lecture

- Workday → Writing up research on commercial projects

Talk with Professor

- Need to expand requirements statement

- Abstract & Measurable

- Need to have some sources to cite for motivation

- Intro

- Mention future work

Research Write-up

- Need to look for things to improve on

- ↳ Emphasize the "Computer Engineering" aspects

- Improvement Idea:

- None of the dispensers had any liquid dispensing functionality

- ↳ Include modular containers, one for solid one for liquid

- ↳ Have a way for micro controller to tell which is which

February 13th, 2023

- Workday, Presentation & Proposal

- ↳ Emphasis on proposed work

Work Completed:

- Miro board for sketching & Designs

- Work proposed section → Continue work

- Format final proposal

To be Continued

- Presentation

- Management Scheduling

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February 15th → Presentation from 8:15a - 8:45a
Personal Notes:

5

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Team A:8:50 - 9:13a

- Background → Post-COVID, 70% of Americans are participating in E-commerce
 - ↳ 5-Trillion Dollar expansion in market
 - ↳ Parcel Piracy is becoming increasingly
- Needs Statement: Need a product that can reduce packages stolen
- Product: Face recognition lock box with keypad
 - ↳ Want to give box security features
 - ↳ Heating pad to keep food warm
 - ↳ Pre-existing delivery box does not meet standards

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Project B: Fitness Watch / Device

25

- Background → 32% of population is obese, want a way to track fitness

- Needs Statement:

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- Literature Review:

- ↳ Fitbit → focuses on numbers instead of recommendation
- ↳ Apple Watch → Most expensive
- ↳ Whoop band → Subscription Service
- ↳ Oura Smart Band → Ring implementation

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- Proposed Design: Arduino Zeno for main processing unit

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PROJECT

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Team Q: Music Master

9:43 - 10:01 a

- Problem Background → 100,000 Musicians, Definitely more
 - ↳ Defined Goal
 - ↳ Motivation
 - ↳ Feedback
 - ↳ Repetition

• Needs Statement:

• Objectives:

- ↳ User provides objective and music

- ↳ Product will provide output of Performance Statistics

- Pitch & Accuracy Percentage

- Track on a graph how much improvement is made over time

- Provide notifications for music deadlines & encouragement

• Literature Review:

• Design Constraints:

- ↳ Turn sheet music into midi,

- ↳ Take user performance as an input to match w/ midi

Super Salad: Customizable Food Dispenser

10:05 -

• Problem Background → Food Service constantly evolving, want to replace Self-Serve with something more accessible

• Needs Statement: There's a need for an accessible and sanitary product that can replace a buffet style food service

• Literature:

- ↳ Manual Dispensers, Rotating Dispensers, & Click free-style

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February 17th, 2023 - Friday Meeting

- Look over Gantt Chart
- ↳ Express Concerns

5

Day for ordering parts: Wednesday 22nd, Feb 2023

Questions: PLA food safe?

A: No! 3D printing process is not food safe,
best to wash parts and coat w/ something
that is.

Challenge: Getting Raspberry Pi to Comm. w/ Ardunio

Plan for Week:

- Caleb: Start Sketches, Collaborate w/ me on Monday
- JP: General UI Sketching, Pages/Buttons, Layout
 - ↳ Start thinking about language
- Kyle: Block Diagram → More detail
 - ↳ Physical or Digital triggers for motors/Servos
 - ↳ Subsystems / Additional parts.

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PROPRIETARY INFORMATION

TITLE Part Sketches

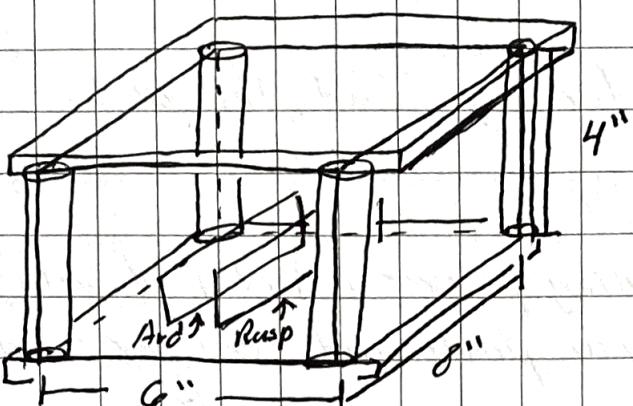
PROJECT Cupstove

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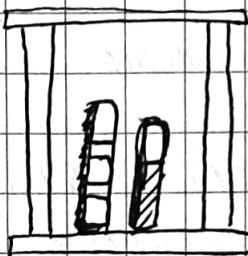
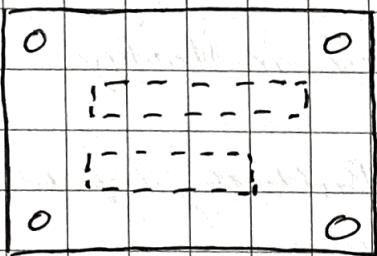
February 19th, 2023

Base:

Idea 1:



Raspberry Pi 4 Dimensions: $3\frac{3}{4}'' \times 2\frac{1}{4}'' \times 3\frac{3}{4}''$
Arduino Uno Dimensions: $2\frac{3}{4}'' \times 2\frac{1}{4}'' \times 3\frac{3}{4}''$



1 sq inch



February 20th, 2023

- Need to acquire parts □
- Sketch remaining parts for fabrication □

Acquiring Parts: Fill out request form, e-mail Karl with all amazon links
He will submit to CSE Accounting, receive parts in about a week

TITLE Part Sketches

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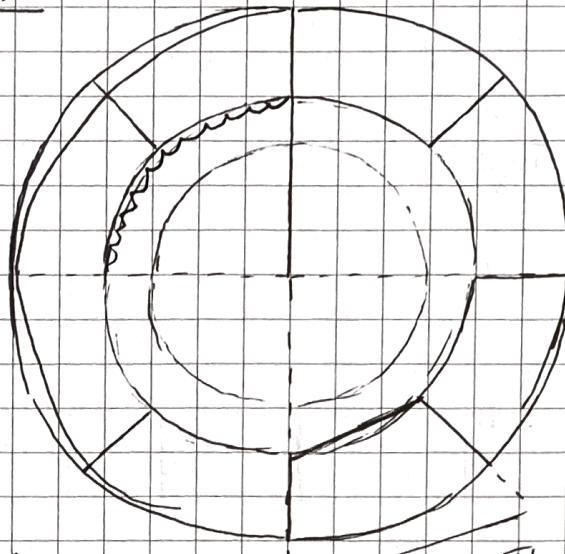
PROJECT Capstone

Sp in.

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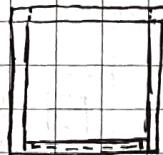
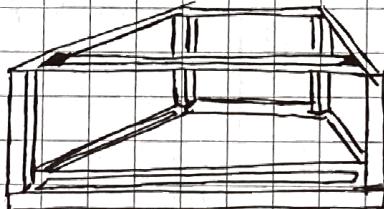
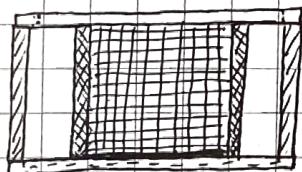
Part Sketches:

- Motor housing
- Stepping Mechanism
- Rotating gear
- Housing
- Screw Screw Mechanism
- Screw Housing
- Dispensing

Gear:

Note: Standard Spice 5" tall x 2" diameter
 $\approx 15.7 \text{ in}^3$

Thinking about projecting out for housing

Housing:Screw:

- Open Frame
- Able to slide plexiglass in
- No bottom, attached to dispensing mechanism

(6)

MOT

• Need a way to attach Screw to dispensing base plate

↳ Archimedes Screw



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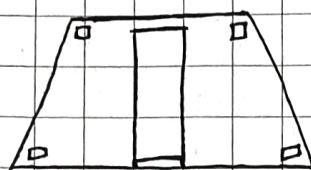
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TITLE Part Sketches

PROJECT Cupstone

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Dispensing Base:
-Front Dispensing

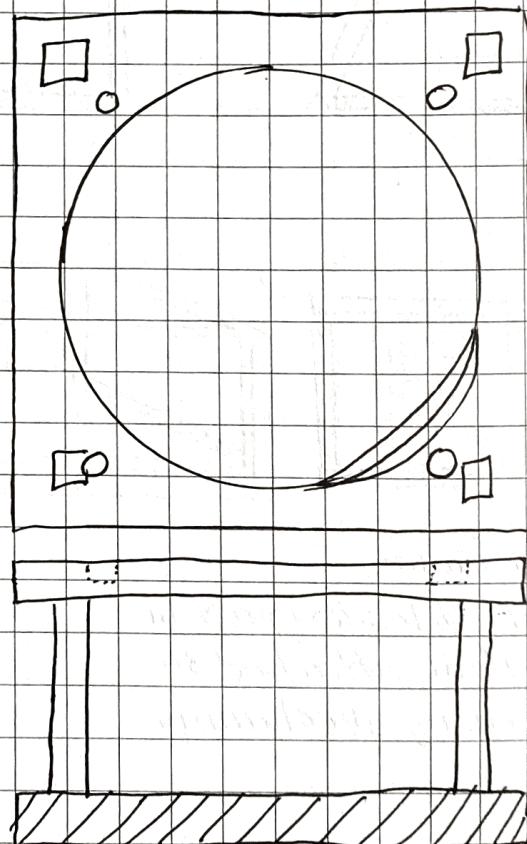
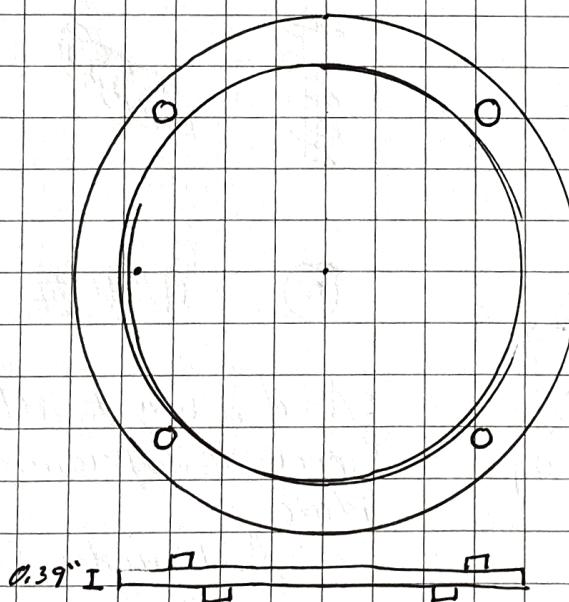


February 26th, 2023

Feet can fit into indent

Bearing Table:

Base:



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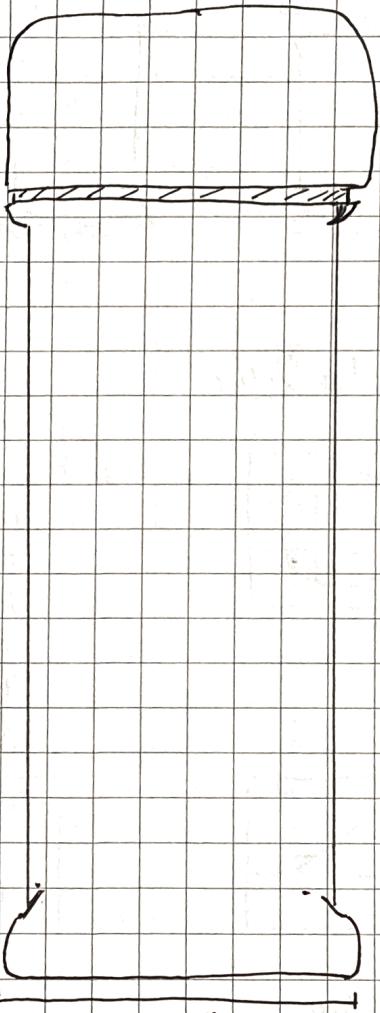
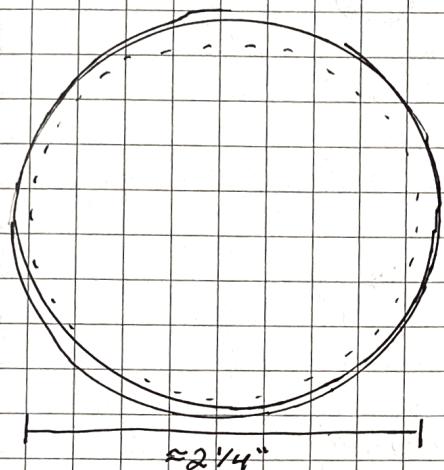
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PROJECT

During weekly meeting, spoke about changing shape of housing to a tube:

- Tube w/ funnel
- Tube w/ base
- Syringe w/ base

Tube:



Note: This is a "Bolner's FIESTA Brand" garlic powder container. This is drawn to scale and will be a rough reference to the actual tube size.

$\approx 2\frac{1}{4}''$

$\approx 5\frac{1}{8}''$

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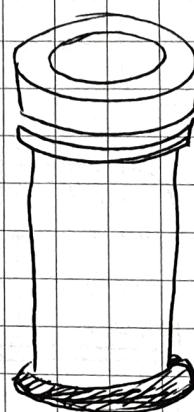
Tube @ Square Scale:

1.5g in

5



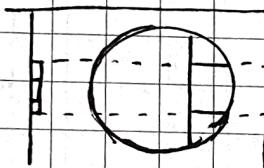
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Base For Tube:

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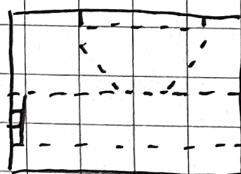
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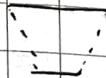
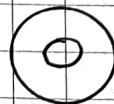
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Alternative

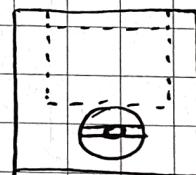
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Funnel:

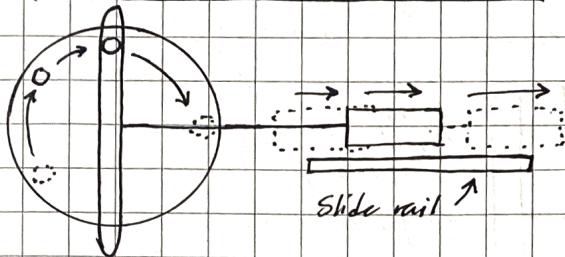


Note: Base includes a small decline into the spiral dispenser. This should help focus spices into one spot. May need a way to keep spices away from motors.



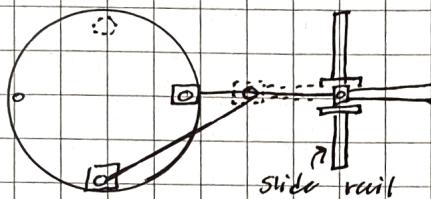
Converting Servo motion to Linear:

Scotch Yoke Mechanism:



Note: Diameter of rotating component varies linearly w/ distance of linear motion

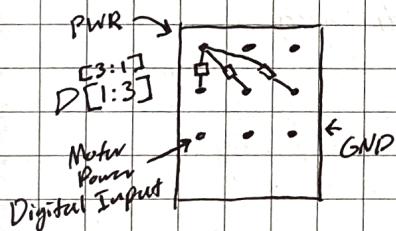
Slider Crank Mechanism:



March 8th, 2023

New idea for Connections

PIN SYSTEM



- Have a small pin board on each container
- Power motor and give feedback for container
- ↳ Expose different pins for different containers

STRIPS For easy coupling



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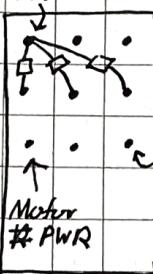
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March 21st, 2023New Coupling System, Electrical ApproachPin Pad

PWR

Electrical Pins

DC[1:3]

Coupling:

Back of Housing



- Allows for tracking of which housing is connected based on DC[1:3]

- Pins made for easier connection

- Connected to Arduino/Pi

March 22nd, 2023Critical Design Review PresentationsTeam Super SaladTeam Delta Serum Delivery

- Problem background

↳ Self Service industry

↳ Not convenient, not accessible

- Problem Background

↳ Park piracy

↳

- Couple of alternative solutions

↳ Changes to main design

↳ Changes to feed system

- Changes to Design

↳

↳

- Had a couple of scheduling

Setbacks, but still able to finish before deadline

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CDR Presentations ContinuedTeam Biggest Losers

- Problem Background
 - ↳ Obesity problem in U.S.
 - ↳ Want a way to track activity & food intake

- Changes
 - ↳ Voltage Booster for Arduino

Team Music Master

- Problem Background
 - ↳ Barrier to entry in music
 - ↳ There are better ways to practice music / playing instrument

- Future Changes
 - ↳ Track performance over time
 - ↳ Note accuracy, Dynamics, Tuning.

April 3rd, 2023

H - Home meeting

- Worked on prints & pi-Arduino Connection

April 5th, 2023

Weekly Meeting - Team Notebook recorded minutes

- 3D Model for Bearing Gear
 - ↳ Min Box Dimensions: 320mm x 170mm x 40mm
 - ↳ Boundary Box For Spiral: 46mm x 46mm x 83mm
 - ↳ Boundary Box For Container: 120mm x 60mm x 81mm

April 7th, 2023

- Connected to touch screen → Need to make a space for screen to sit on.
- Likely have a double decker base, 1st base will hold screen, 2nd will hold boards.

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Measurements For Touch Screen:

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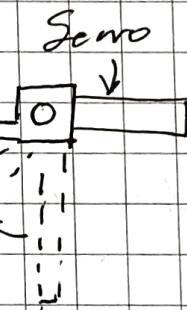
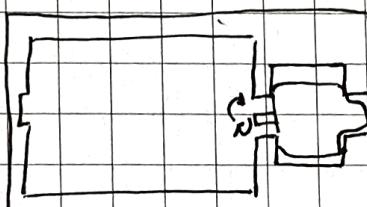
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Monday, April 10th, 2023"Slap" Mechanism - New way to connect arduino power to motors
on Spice

- Removes need to perfectly line up housings
- Easiest way to provide power



Space from coil to housing top: 8.0mm

Wednesday, April 12th, 2023

Bearing Gear (Motor)

Boundary: 90mm x 90mm x 16mm

Housing: 120mm x 60mm x 80mm

Lid: 120mm x 60mm x 60mm

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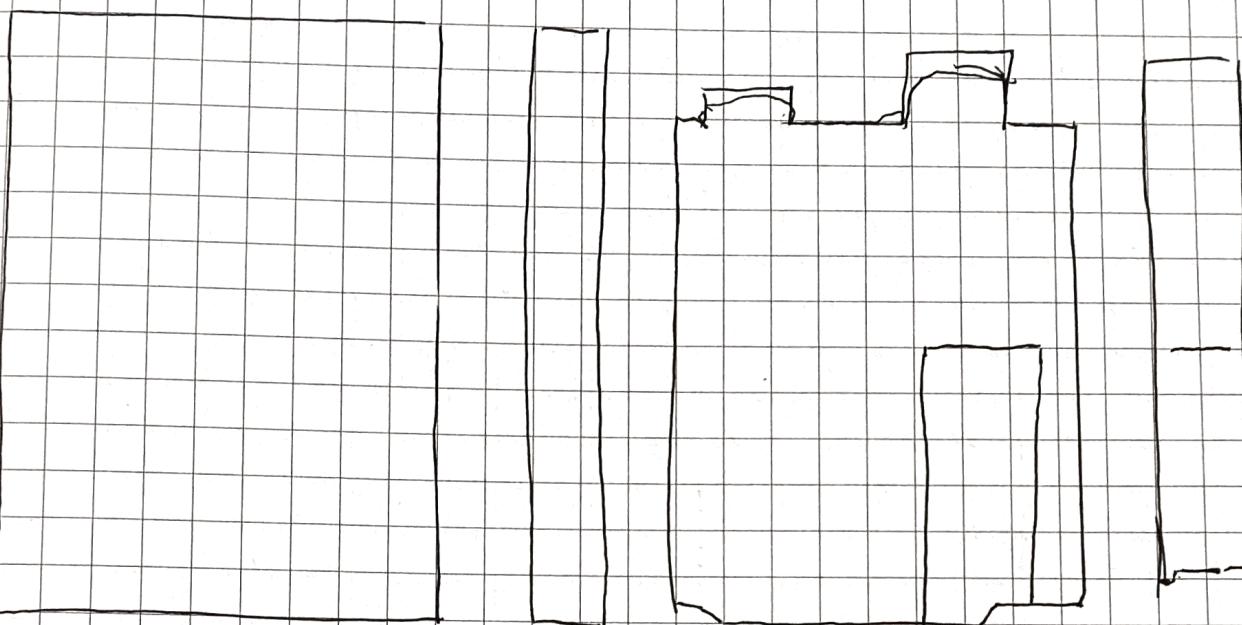
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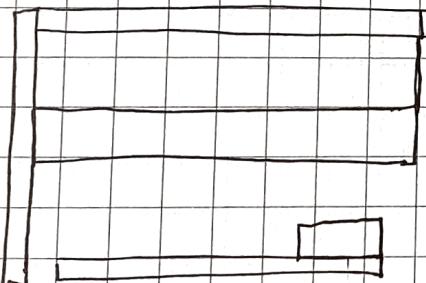
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PROJECT**15**April 17th, 2023

Bread Board

Arduino Uno R3

Brackets For Both



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