meeting #1 (weekly) 1/27/23

Our top 4 ideas:

1) "Life Alert" security
   i) possibly scrapped; too simple and the security system to expand upon it may be too broad.

2) Cooking Device
   i) measure temperature of certain foods
   ii) could also check seasoning

several factors to consider

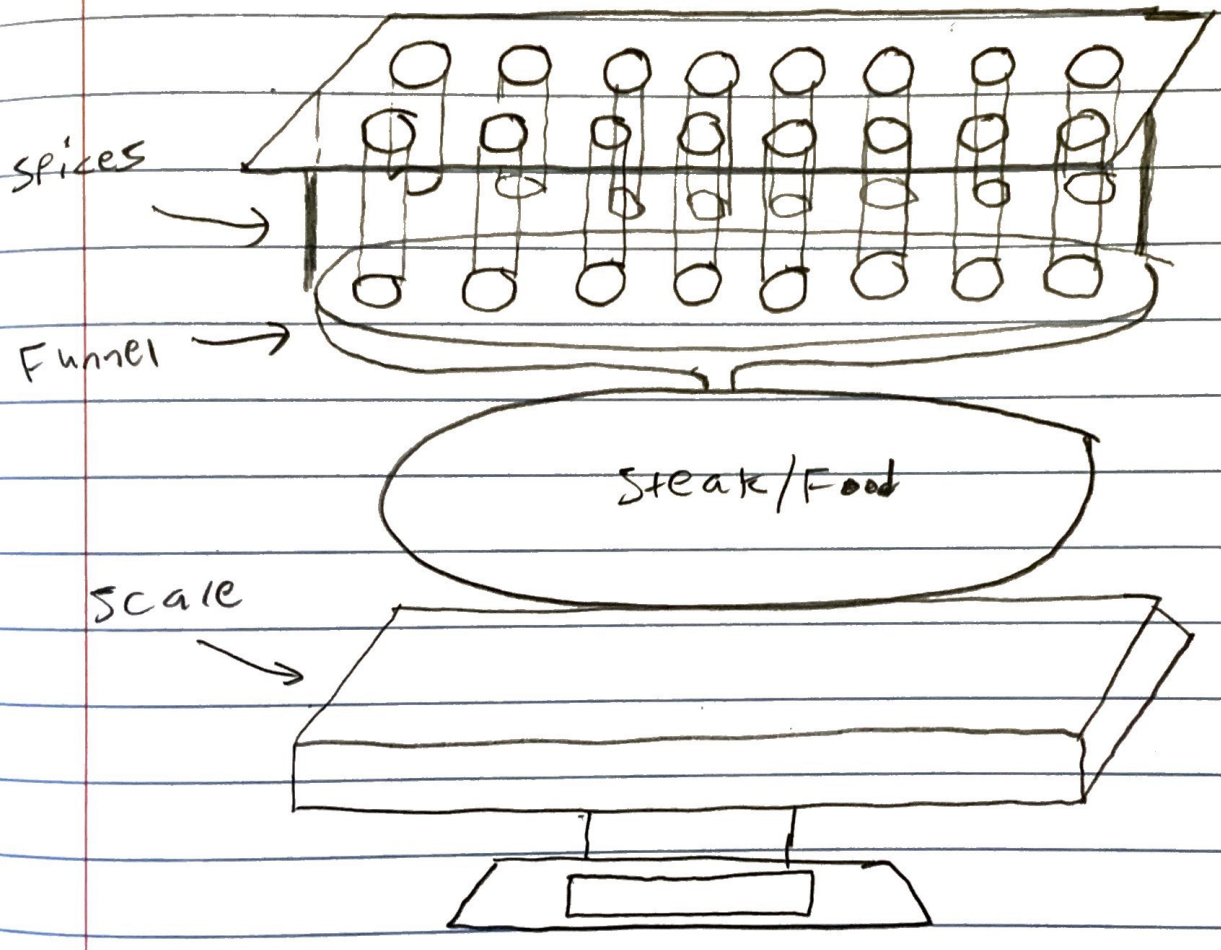
3) Beer brewing
   i) Reverse osmosis
   ii) Matching mineral profiles of beer
      a) conducted research on this, as well as reverse osmosis to get a better idea on the scope of the project.

4) Plant health
   i) scrapped; testing would take too long due to having to grow actual plants

Implementation for top 2 ideas:

1) Cooking Device
   i) spice rack that can distribute proper amount of seasoning based on the recipe, which could be wel scraped
      a) Relies on a variety of tubes each holding a different spice in it

Rough sketch of cooking device:



Beer brewing has a similar idea; tubes for the different minerals put into the beer

Final idea: Automatic distribution array of tubes

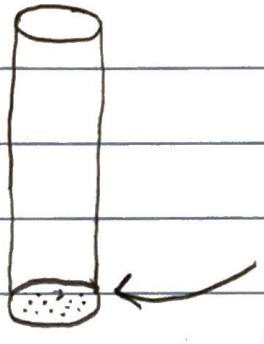
1) Going to implement it in terms of cooking first (spice rack)
2) Beer brewing if time permits

Meeting Length: 2:15 PM - 3:40 PM

Meeting #2 (In class) 1/30/23

Key points for our idea:

- Design process; how to go about designing the spice rack (ordinary clear tubes with 3D printed container to hold them?)
- Sprinkle mechanism for each pipe as shown below:



Holes at the bottom to distribute spice evenly; system will shake as well to accomplish that

- can also use a slab of wood as the foundation for the container

Needs:

- Identify target users
  1) specifically motor disabled people; this system will eliminate the need for them to shake and it will distribute the spices for the user
- Try finding past solutions and continuing research on them
- Materials List:
  - Tubing
  - Funnel
  - container
  - Arduino, Pi
  - Scale
  - servos

- Room for alternative solutions

Final idea approved: Automatic spice rack

meeting time: 8:00 AM - 10:30 AM

Meeting #3 (weekly) 2/3/23

Meeting time: 3:00 PM - 4:30 PM

Class cancelled on Feb 1st: Did not meet on that day

Compiled a list of similar ideas to brainstorm how we can expand upon the idea and add uniqueness to it.

Did some more in-depth research on the ideas we compiled

- "measureMINT"
  1) Senior project that automatically measures spices into a bowl based on user's preferences
  2) Only difference from our idea is that it does not take the recipes themselves into account
- TasteTo
  1) Similar concept to ours; even takes recipes into consideration
  2) Our goal would be to make the design aspect unique
  3) Other senior design projects were apparently inspired by this product as well

((6)

Also looked at an automated beer brewing system as a senior design project, considering we could have an idea in to this one should we have to

1) Budget could be an issue

2)

some of the previous ideas mentioned here also... implement the networking aspect that we proposed

observed target audiences for 2 different ideas:

1) spice dispenser - motor disabled people

2) water mineral dispenser - people who brew beer

i) make the whole process simplified

proposal

Introduction: Due by monday Feb 6th

Literature: Due by wednesday Feb. 8th

Proposed work: Due by Feb. 13th

Engineering Standards / Exec. summary: Due by Feb. 15th

Meeting #6 (In-class) 2/6/23

meeting time: 8:00 AM - 10:10 AM

Five Dysfunctions of a team:

1) Absence of Trust
2) Fear of conflict
3) Lack of commitment
4) Avoidance of Accountability
5) Inattention to Results

Today's goal: Needs Statement, objectives, constraints

Needs Statement: People w/ motor disabilities have trouble properly seasoning/spicing their food.

Goals/objectives:

- Support at least 4 spices
- capable of distributing accurately a minimum volume of spice
- water resistance
- Accessible user interface
- Minimize the amount of maintenance required
- Main goal: make cooking more accessible to the elderly and motor disabled people

(8)

Constraints:

- Fit within a reasonable area (not too large, suppose it be made for the kitchen)
- Budget
- Battery/outlet powered
- Temperature (kitchens can get hot)
- Distribute materials in a timely manner

Plan to meet again at 8 PM to finalize needs statements, goals/objectives, constraints

Meeting #7 (online) 2/6/23

Meeting time: 8:00 PM - 9:20 PM

Revised introduction for the project proposal, brainstormed name ideas for the product
- Anything with an acronym?

Came up with feasibility needs to go along with the constraints
- Networking could be difficult, especially when paired with an app

(10)

meeting #8 (In-Person) 2/8/23

Meeting time: 8:00 AM - 10:00 AM

Finalize research/literature today; review the products we found and how they relate to our proposed idea

Product 1: Jeffrey Wang spice dispenser

Product 2: Tastetro

Product 3: measureMINT

Product 4: "spicer" Automated spice dispenser

Product 5: Fab Academy Final project

Notes from Prof, TA:

- clarity on constraints
- Intro: Find statistics that are related
- some water line functionality to account for the cleaning

How S.P.I.C.E can improve upon the existing products listed above:

- Web scraping calability to retrieve spices used in recipes to dispense the proper amount of spices for food
- Implement UI, make UI efficient and easy to use

Meeting #9 (weekly) 2/10/23

meeting time: 2:00 PM - 4:00 PM

Today's Goals: Revise intro, work on presentation, finish literature survey

Found research for introduction showing statistics of people with motor disabilities or are living alone

Lit. survey complete

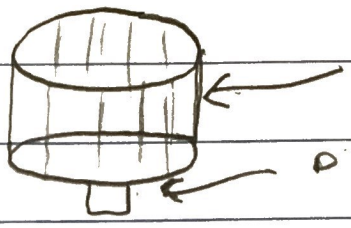
(12)

meeting #10 (In-person) 2/13/23

meeting time: 8:00 AM - 10:30 AM

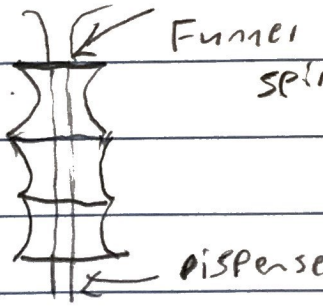
Alternative solutions:

1) Rotating mechanism to hold spices



- uses medium-sized containers in a donut-shape

2) spiral mechanism for spice distribution



3) Support recipe options and individual spice options

4) mobile app vs. touchscreen

5) Voice recognition

Roles Assigned to team members

Leader - Carlos

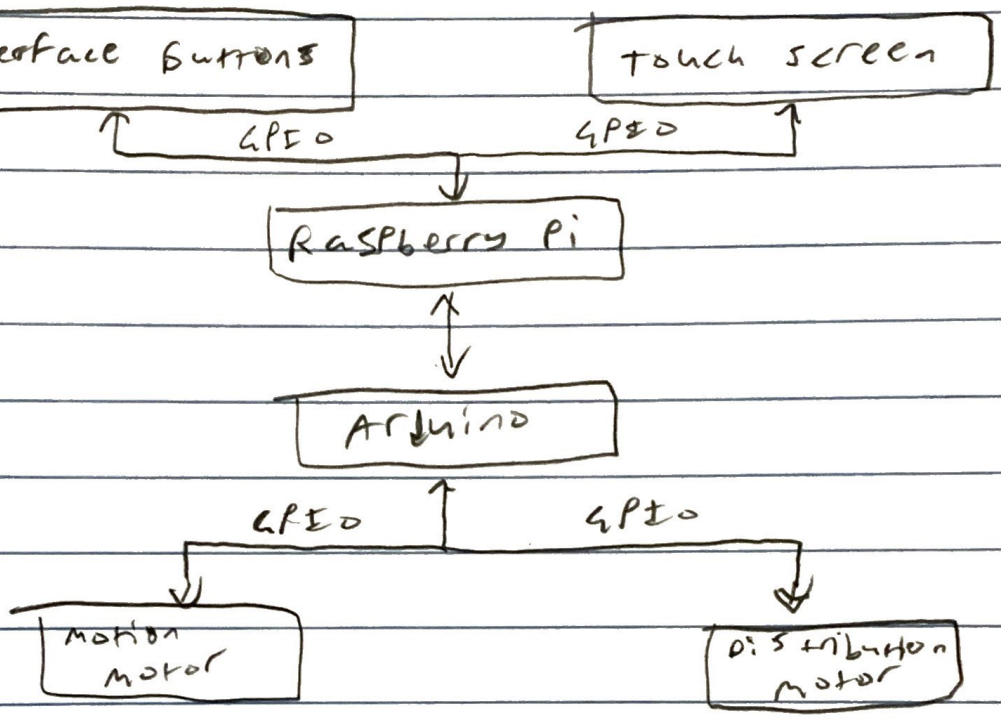
Hardware design (Broken into sub-roles) - Caleb

Software design (...) - JP RPI/Arduino - Caleb/Kite

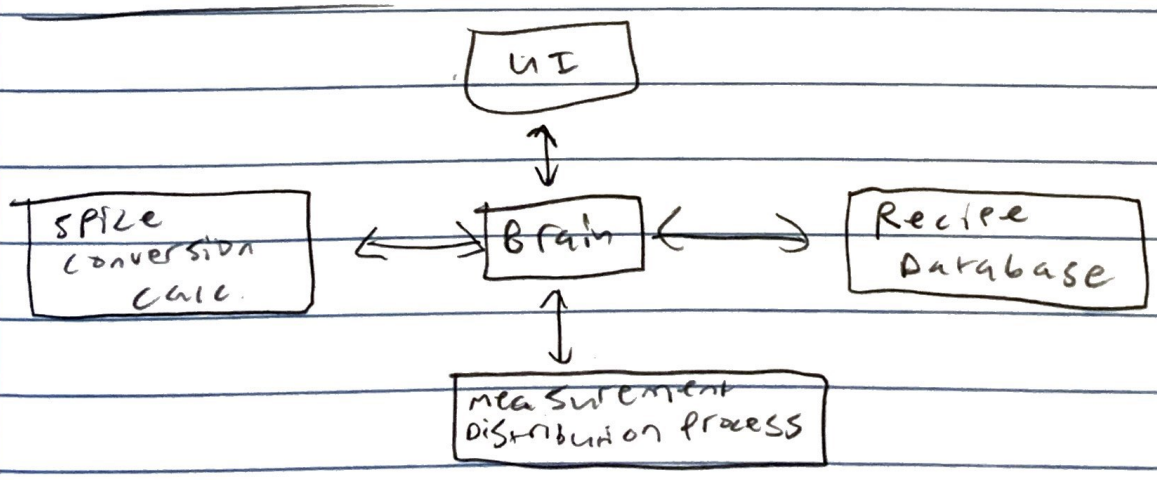
Material Acquisition - Carlos Testing Lead - JP

Block Diagram of System:

Hardware Design:



Software Design:



3D Modeling - Caleb/Carlos

- Design - Everyone

Distribution mechanism - Everyone

UI Design - JP/Carlos

Recipe Database - JP