10/21/22 Meeting Minutes

12:30 - Meeting started

4/4 Attendance - Everyone present

12:35 - Tasks we have done this month

Elbie Saysombath: Software Engineer, take motor code and make a function/class out of it. Under a button function to make motor run. More research on what is needed

Adam Six: Design Lead/Systems Engineer, responsible for the design of the appliance gathering/producing the mechanics of the spice dispenser and overall functionality. Made new design.

Jacob Stark: Electrical systems lead/Project Lead, responsible for the project as a whole, and the electrical work for the connection for the stepper motor, GUI, and power looked into servo motors

Collin Pruden: software/hardware Engineer/ Team Leader, responsible for the team as a whole. Works along side with Elbie and Jacob to build the GUI, and connection for the stepper motor research and worked on code for GUI

Discord will be our main communication and Github is where we will upload all of our documentation, codes, project.

 Discussing team contribution and evaluation when presenting our project.

12:50 - Project Run down

 Overall Design:

Designed with ease-of-use in mind, with a single point of input through a touchscreen

Touchscreen controls a Pi, which controls internal motors

Everything is done on the backend, reduces user knowledge requirement

Includes easily removable pieces for ease of cleaning

* Takes input via a simple touchscreen made available from the front of the device
* Outputs given spice at a given amount using as few moving parts as possible
* Consists of 2 motors, 8 containers, an outer shell, a raspberry pi, and relays to safely power the motors.

Internal Design:

* Trough-style dispenser, where the dispenser is the part that moves, and the containers are in a fixed position.
  + This allows for the spice to not get lost in movement and gum up the insides of the device.
* New expected failure points are purely statically mechanical and logistical instead of dynamically mechanical and logistical. Fewer moving parts that can get a buildup of material means that the device can run for longer without needing cleaned or parts needing replaced.
* Main sticking point will be the proper funneling of the device instead of buildup inside device’s moving parts
* Specialized spice containers will be needed in order for the device to function as intended, due to splined heads that allow for the dispensing and opening/closing of spice container itself.

New components:

Shell Design

* + Allows for a much more modular system design in case we want to expand or contract number of containers
  + Allows for a much simpler system in which we calculate the steps needed to take to go from our origin point to the desired positions.
  + Will allow for less moving components, is improve the response time from spice to spice, limiting any losses.

Motor Design

* + Servo motors allow us to be much more careful, accurate with our device placement and are much easier to work with, with a larger library of resources for us to pull from.

Circuit Design

* + The design of the circuit will largely stay the same in terms of a wiring diagram, but will change drastically when implementing it to allow for good airflow and to take heating issues into better account.

Hardware:

Raspberry Pi4

Able to handle many of the tasks necessary to run things like the motors and relays in the system, while monitoring all the input of the device itself

Can handle multiple inputs and outputs needed for many projects, which makes it a reliable device to use.

Software:

GUI ( Interface)

Easy to use

Select one spice, amount of increments

Stepper Motor

Works in line with the GUI

1:25 - Meet with sponsor

Bi-Weekly Meeting with Dr Pang.

1:40 - Tasks assigned to individuals

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1:36 - Plan of action

Waiting on components to start testing/calibrating

Finalize project

the models that Adam is m making and the redesign that were going to have,

Working on the switch to servo motors from steppers.

Continue Research in any relating existing products or similarities.

Look into more codes to help the stepper motor and create a pretty GUI

Record all resources in our discord and communicate.  Work on the model in 3D software.

1:49 - Wrap up/End of Meeting

Making sure all current assignments are done.

1:50 - End of Meeting