PROJECT TWO: MILESTONE 2 – COVER PAGE

Team Number: Thurs-23

Please list full names and MacID's of all *present* Team Members

Full Name:	MacID:
Emilie Alain	alaine1
Vaisnavi Shanthamoorthy	shanthav
Ziyang Qin	qinz36
Arthes Matheeswaran	matheesa

MILESTONE 2 (STAGE 1) – REFINED CONCEPT SKETCHES (MODELLING SUB-TEAM)

Team Number: Thurs-23

You should have already completed this task individually prior to Design Studio 8.

1. Copy-and-paste each sub-team member's refined sketch on the following pages (1 sketch per page)
   → Be sure to indicate each team member's Name and MacID

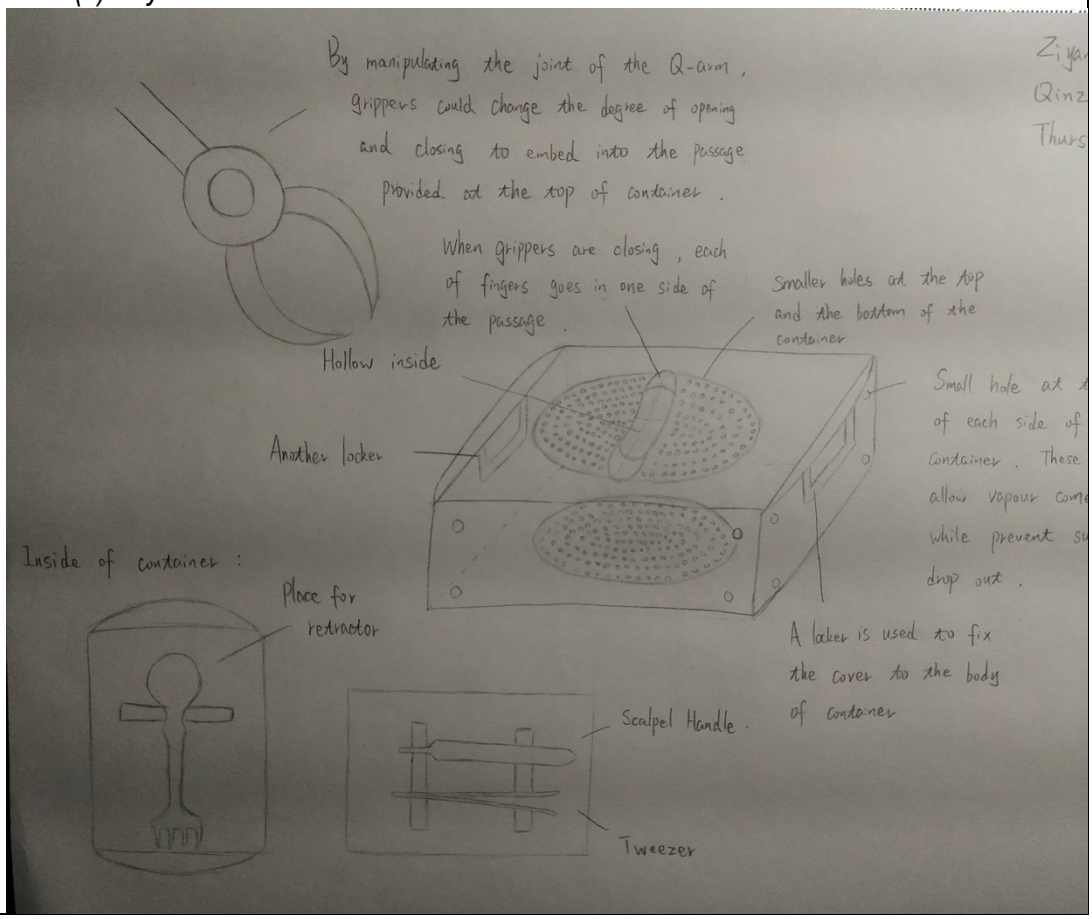
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their refined concept sketches with the **Milestone Two Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone Two Team Worksheets** document allows you to readily access your team member's work
  - This will be especially helpful when completing ***Stage 3*** of the milestone

Team Number: Thurs-23

Name:Ziyang Qin	MacID:Qinz36

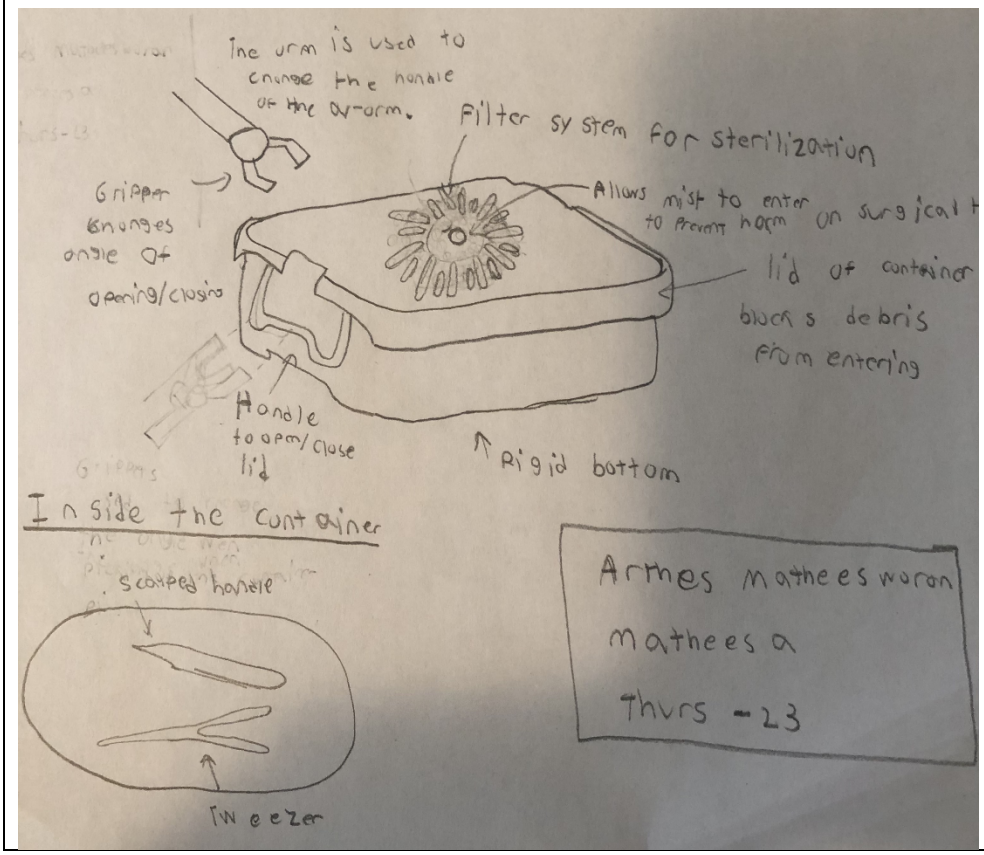
Insert screenshot(s) of your refined sketches below



Team Number: Thurs-23

Name: Arthes Matheeswaran	MacID: matheesa

Insert screenshot(s) of your refined sketches below



*If you are in a sub-team of 3, please copy and paste the above on a new page

MILESTONE 2 (STAGE 2) – COMPUTER PROGRAM WORKFLOW (COMPUTATION SUB-TEAM)

Team Number: Thurs-23

You should have already completed this task individually prior to Design Studio 8.

1. Copy-and-paste each team member's storyboard or flowchart sketches on the following pages (1 team member per page)
   → Be sure to indicate each team member's Name and MacID

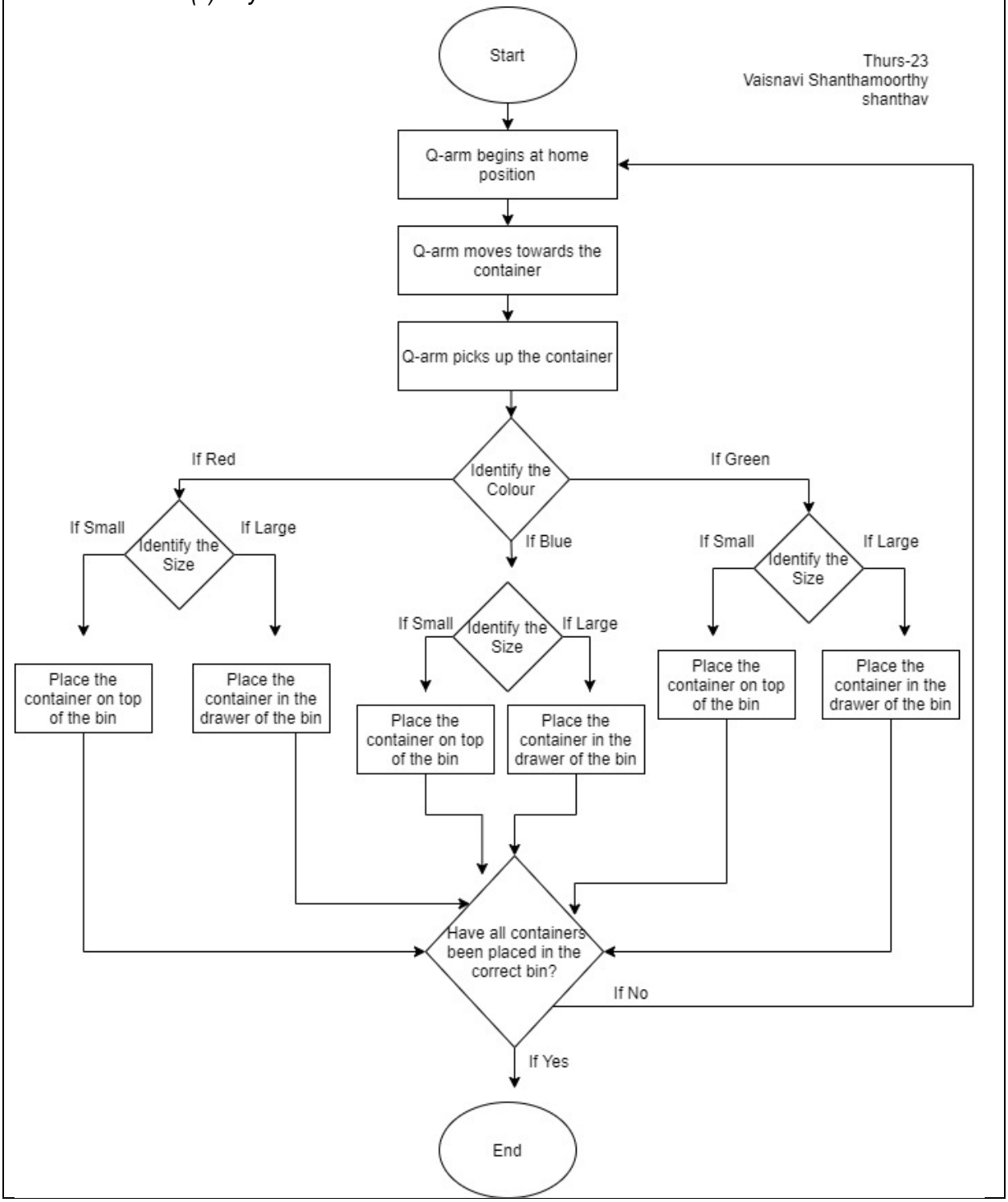
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their storyboard/flowchart with the **Milestone Two Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone Two Team Worksheets** document allows you to readily access your team member's work
  - This will be especially helpful when completing ***Stage 4*** of the milestone

Team Number: Thurs-23

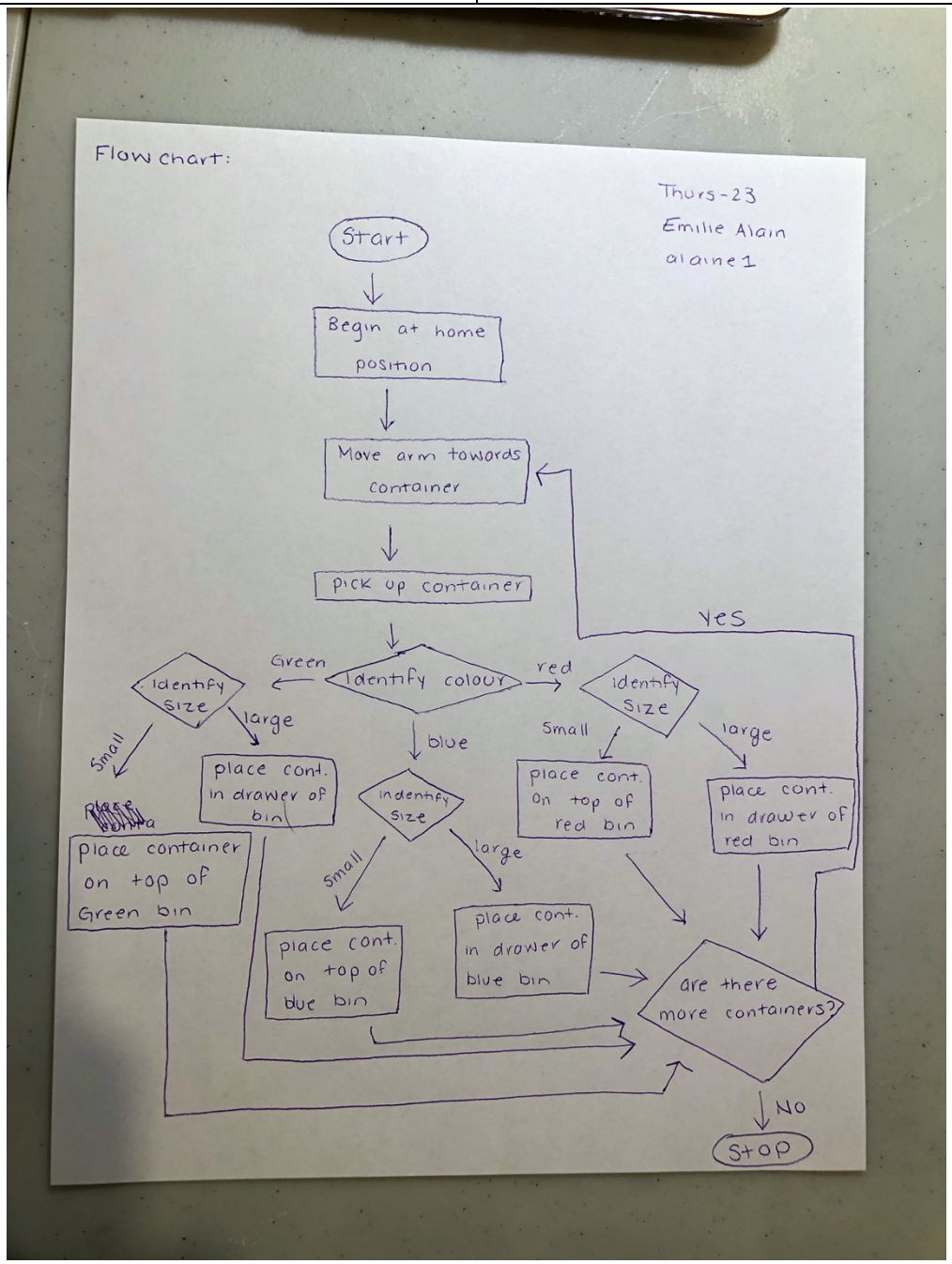
Name: Vaisnavi Shanthamoorthy	MacID: shanthav

Insert screenshot(s) of your workflow below



Team Number: Thurs-23

Name: Emilie Alain	MacID: alaine1



*If you are in a sub-team of 3, please copy and paste the above on a new page

MILESTONE 2 (STAGE 3A) – LOW-FIDELITY PROTOTYPE (MODELLING SUB-TEAM)

Team Number: Thurs-23

Complete this worksheet during design studio 8 after creating the low-fidelity prototypes.

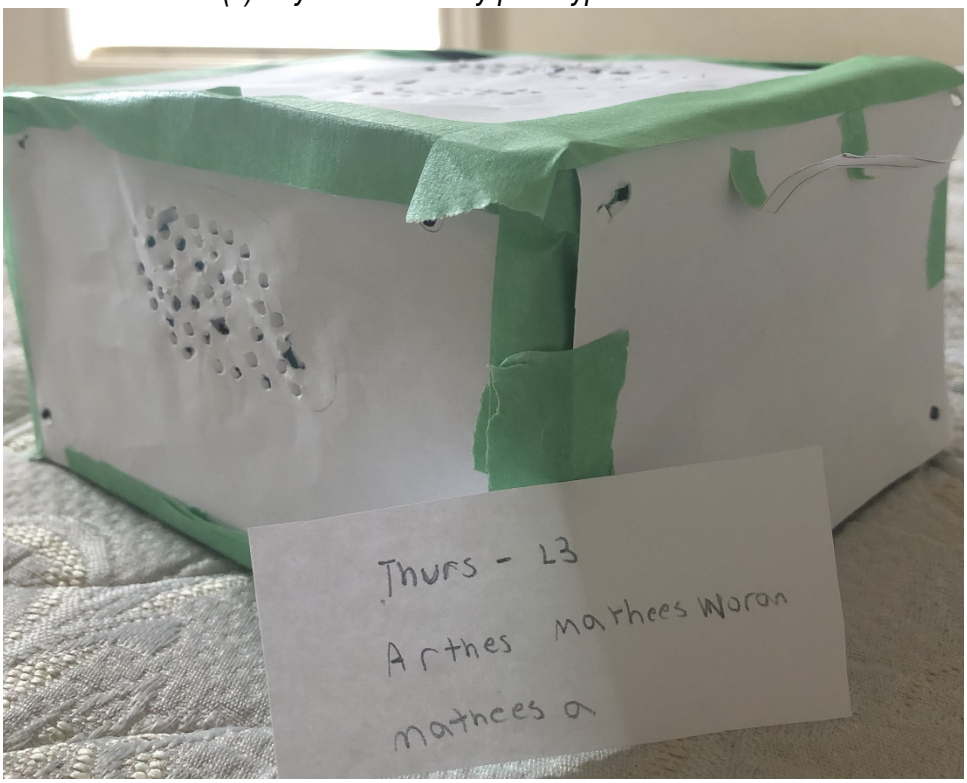
1. Take multiple photos of your low-fidelity prototypes
   → Include an index card (or similar) next to the prototype, clearly indicating your Team Number, Name and MacID on *each* sketch
2. Insert your photo(s) as a Picture (Insert > Picture > This Device)
3. **Do not include more than *two* prototype photo's per page**

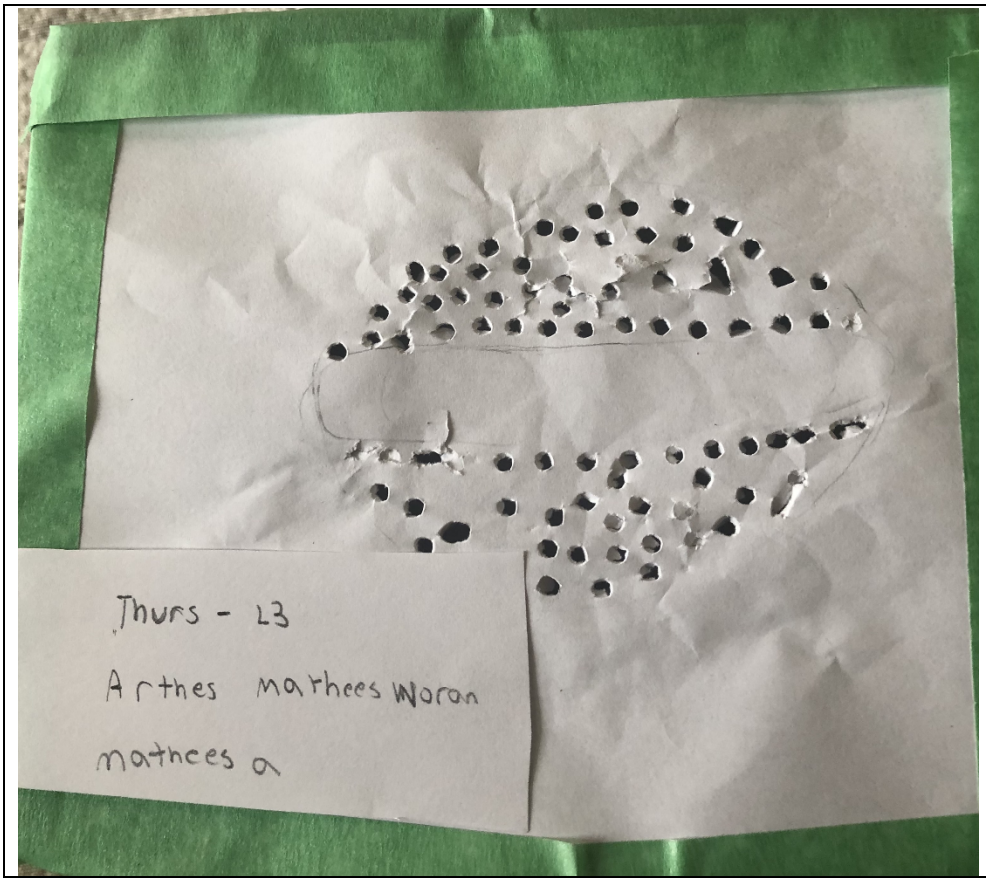
Make sure to include photos of each team member's prototype

Team Number: Thurs-23

Name:Arthes Matheeswaran	MacID: matheesa

Insert screenshot(s) of your low-fidelity prototype below

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Team Number: Thurs-23

Name: Ziyang Qin	MacID: Qinz36

Insert screenshot(s) of your low-fidelity prototype below

*If you are in a sub-team of 3, please copy and paste the above on a new page

MILESTONE 2 (STAGE 3B) – LOW-FIDELITY PROTOTYPE OBSERVATIONS (MODELLING SUB-TEAM)

Team Number: Thurs-23

As a team, document your observations for each low-fidelity prototype. Make sure to label your observations to indicate which prototype it belongs to. As a starting, consider the following: (note, this does not fully encompass all discussion points)

→ Advantages and disadvantages of each prototype
→ Extent to which each concept aligns (or does not align) with the List of Objectives, Constraints, and Functions you came up with for Milestone 1
→ Reliability of the design in picking up the surgical tool
→ Reliability of the design in securing the surgical tool
→ Extent to which it allows for tool sterilization

Advantages:
-Both prototypes have an excellent sterilization system that allows for mist to enter and not harm the surgical tools
-The two prototypes have a lid that blocks debris and bacteria from entering the container
- Lids are easy to open and hardly fixed to the body of the container

Disadvantages:

- *Have air filters on the container and not just on the top of the container*
- *Inside the container both should have a cushioning for the surgical materials to be placed inside the container without any harm*
- *Surgical tools may damage when the Q-arm is dropping the container. It is better to use some tools to lower the collision between the surgical tools and the container (e.g., sponge).*

List of Objectives, Constraints and Function:
Aligns with:

- *Picking up container*
- *Both prototypes are light weight, small and portable*
- *Open and close with handle of container*

Does not align with:

- *Container does have a cooling/heating system*
- *Both prototypes don't have dimension on them*

Reliability of the design in picking up the surgical tool:

Our prototypes are not designed to pick up surgical tools as they only have a handle to open/ close the lid of the container. If our prototypes had included a magnetic handle for example, then the surgical tools would have attracted to the handle for ease of pickup.

Reliability of the design in securing the surgical tool:

Our prototypes did some designs for securing the surgical tools. We try to use some grooves to make sure that surgical tools don't move or fall apart when they're put inside of the container.

Extent to which it allows tool for Sterilization

The prototypes both have a good filter system that wouldn't allow for the tools for sterilization get affected by bacteria and allows for water vapor to come in. The lid on the container also traps and blocks microbes and waste from entering.

MILESTONE 2 (STAGE 4A) – WORKFLOW PEER-REVIEW (COMPUTATION SUB-TEAM)

Team Number: Thurs-23

As a team, document your observations, specifically any similarities and differences between each team member's visual storyboard or flowchart in the table below.

Similarities:
Some similarities present between both of our flowcharts includes the fact that we both decided to initially start with the arm at its home base. We then both said to move the arm towards the container and pick it up. Moreover, both of our flowcharts identified the colour of the container first, then moved on to identifying the size of the container in order to place the container in the correct autoclave bin. Overall, in comparison to one another, our flowcharts are quite similar.

Differences:
Our flowcharts for the most part followed the same steps, except for the last step. In Emilie's flowchart, her last step consisted of ensuring that all the containers were placed in bins and that there were no more remaining to be placed. In Vaisnavi's flowchart, she decided to make her last step to ensure that all the containers have been placed in the correct autoclave bin and if they were not, to return to home position and repeat the process until this condition is satisfied. These conditions are similar therefore, we think that both steps are equally important and both steps should be combined to ensure that every container is placed in an autoclave bin but that also every container is placed in the correct autoclave bin.

MILESTONE 2 (STAGE 4B) – PROGRAM PSEUDOCODE (COMPUTATION SUB-TEAM)

Team Number: Thurs-23

As a team, write out a pseudocode outlining the high-level workflow of your computer program in the space below.

1. Identify XYZ location of container
2. Identify XbYbZb location of blue autoclave bin
3. Identify XgYgZg location of green autoclave bin
4. Identify XrYrZr location of red autoclave bin
5. Move arm to XYZ location
6. Pick up container with gripper
7. Identify ID of container
    a. Identify size
    b. Identify shape
8. Rotate and move Q-arm to appropriate XYZ location
    a. Red – XrYrZr
    b. Green – XgYgZg
    c. Blue – XbYbZb
9. Place container in correct spot
    a. Large container – in the autoclave drawer
    b. Small container – on top of the autoclave bin
10. Release container
11. Return to home position
12. Repeat step 5-12 until all containers have been placed in correct autoclave bin
13. Once all containers have been successfully placed in their correct location according to their ID, terminate the code