PROJECT TWO: MILESTONE 1 – COVER PAGE

Team Number: Tues19

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

Full Name:	MacID:
Kyle McMaster	mcmask2
Sana Khan	khans288
Zhuohua Hu	Huz80
Abeka Selliah	selliaha

MILESTONE 1 (STAGE 1) – PRE-PROJECT ASSIGNMENT

Team Number: Tues19

You should have already completed this task individually prior to Design Studio 7.

1. Copy-and-paste each team member's list of objectives, constraints and functions on the following pages (1 team member per page)
    a. 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 list of objectives, constraints and functions with the **Milestone One Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone One Team Worksheets** document allows you to readily access your team member's work
    - This will be especially helpful when completing ***Stage 2*** of the milestone

Team Number: Tues19

Name: Kyle McMaster	MacID: mcmask2

Objectives

- Should be easy to pick up by mechanical arm
- Should minimize cost of manufacturing
- Be an appropriate size

Constraints

- *Must withstand heat from sterilization*
- *Must be light enough to be carried*
- *Features must be > 4mm*

Functions

- Able to hold tool
- Able to be picked up
- Able to be released in controlled manner
- Will Not insulate tool from heat for sterilization

Team Number: Tues19

Name: Sana Khan	MacID: khans288

Copy-and-paste the pre-project assignment for one team member in the space below

Objectives

- Container design should properly sterilize
- A container that securely holds a tool
- Container easy to pick up
- Program is efficient

Constraints

- Must have a firm grip
- Container must be 4mm
- Sliding drawer must open before container is transferred
- Container dimensions should fit end-effector
- Container must be designed to allow for sterilization

Functions

- Transfer the surgical tool into correct bin and colour of autoclave
- Be able to identify correct colour and size
- Should be able to move to the correct location
- Container holds tool without it moving
- Be able to move without colliding with obstacles

Team Number: Tues19

Name: Abeka Selliah	MacID: selliaha

Copy-and-paste the pre-project assignment for one team member in the space below

Objectives

- Should be easy to pickup
- Should use minimal energy

Constraints

- The container must be light enough to be transferred
- Container dimensions must be greater 4mm
- Must fit in the robot arm's end
- Be durable enough to cleaned repeatedly

Functions

- Able to hold surgical tool in place
- Able to be transferred
- Able to be released in controlled manner (By arm)

Team Number: Tues19

Name:Zhuohua Hu	Huz80

Copy-and-paste the pre-project assignment for one team member in the space below

Objectives

- Should pick up the tool
- should follow the command given
- Material should withstand some force
- Container should store tools
- Container should remain sterilized after uses

Constraints

- *Container must accommodate the size of the arm*
- *Robotic arm must move and rotate*
- *Container must have walls*

Functions

- Able to hold tool while moving
- Able to be cleaned

*If you are in a team of 5, please copy and paste the above on a new page

MILESTONE 1 (STAGE 2) – LIST OF OBJECTIVES, CONSTRAINTS, AND FUNCTIONS

Team Number: Tues19

1. As a team, create a final a list of objectives, constraints, and functions in the table below.
   → Use your individual *Pre-Project Assignment* to build your team's final list
   → The exact number you should have depends on what information you have gathered from the Project Pack.

Objectives	Constraints	Functions
Container is easy to pick up	Must have walls	Identify correct location
Holds container securely	Individual features of container must be > 4mm	Container holds a tool
Program is energy efficient	Must be light enough to carry	transport container to correct location
Program is fast	Must withstand the heat of sterilization	Pick up container
System is long lasting	Width < 150 mm	Releases container in controlled manner
	Must be durable to be sterilized repeatedly	Doesn't collide with obstacles

2. What is the primary function of the entire system?

Transport container to correct location

3. What are the secondary functions?

Identify correct location
Pick up container
Container holds a tool
Releases container in controlled manner

MILESTONE 1 (STAGE 3) – MORPHOLOGICAL ANALYSIS

Team Number: Tues19

1. Identify multiple means to perform the secondary functions that your team came up with during Stage 1 of this milestone. One sub-function (pick up) is already listed for you. The other two sub-functions are for your team to choose.
   → Make sure that every mean for the "pick up" sub-function assumes that the end effector of the robot arm is a gripper. The means for your other sub-functions do not need to follow this assumption.

Function	**Means**					
Pick up	Container has indents (ergonomic)	Container has a tab to grab onto	Magnetic container	Dustpan/ forklift	crane	Rubber grip on container
Identify correct location	Colour detector	Feel container for size	Person watching	Bar code on container	Sensor to determine colour	
Container holds a tool	Strap/ seatbelt	Closed lid	Tool pokes out through top	Tape	Magnet	rope

MILESTONE 1 (STAGE 4) – CONCEPT SKETCHES

Team Number: Tues19

Complete this worksheet *after* having completed stage 3 as a team ***and*** after having ***individually*** created your concept sketches.

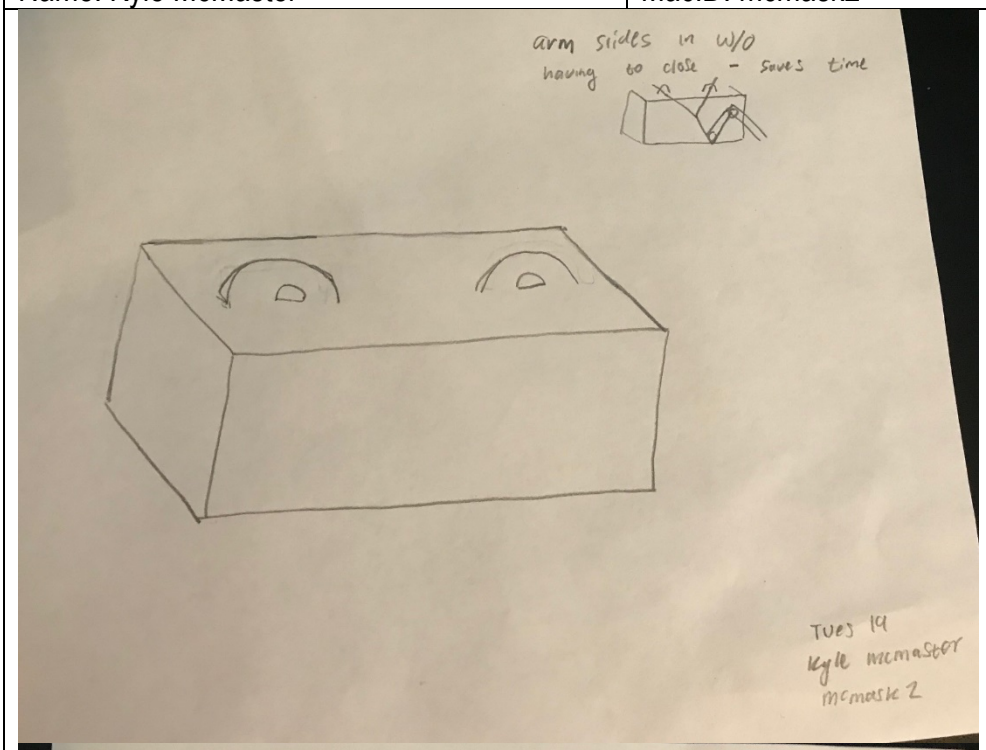
1. Each team member should copy-and-paste the photo of their individual concept sketches in the space indicated on the following pages
   → The photo's should be the same one your included in the **Milestone One Individual Worksheets** document
   → Be sure to include your **Team Number** on each page
   → Be sure each team member's **Name** and **MacID** are included with each sketch

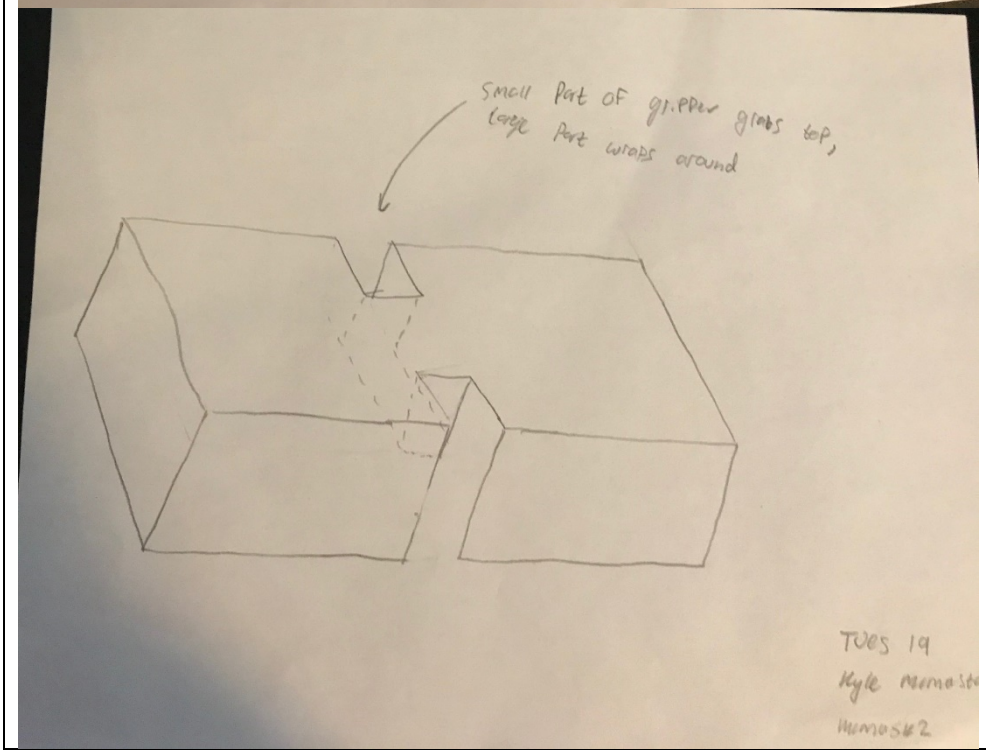
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their sketch with the **Milestone One Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone One Team Worksheets** document allows you to readily access your team member's work

Team Number: Tues19

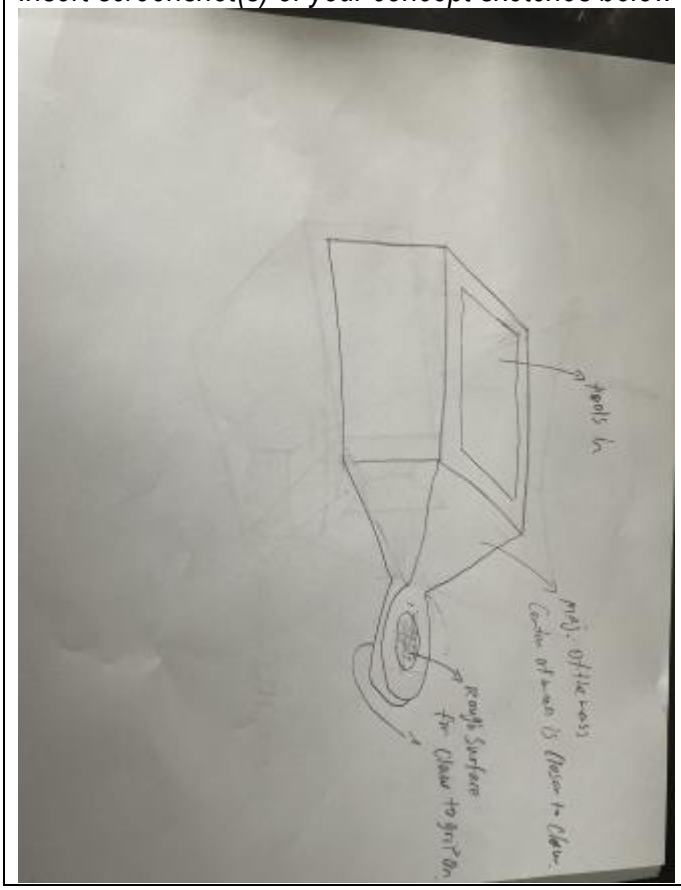
Name: Kyle McMaster	MacID: mcmask2

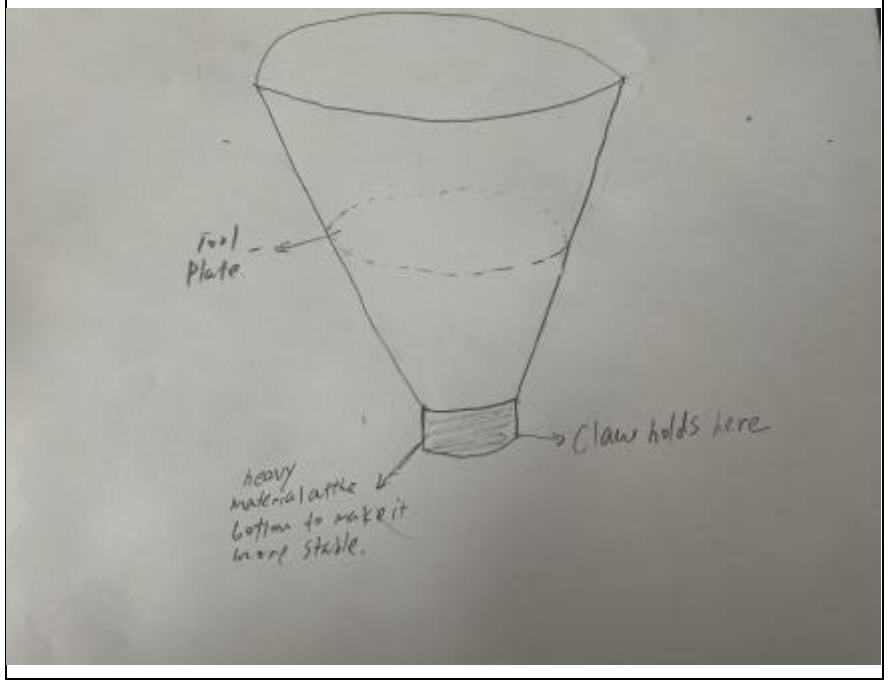




Name:Zhuohua Hu	MacID: huz80

Insert screenshot(s) of your concept sketches below



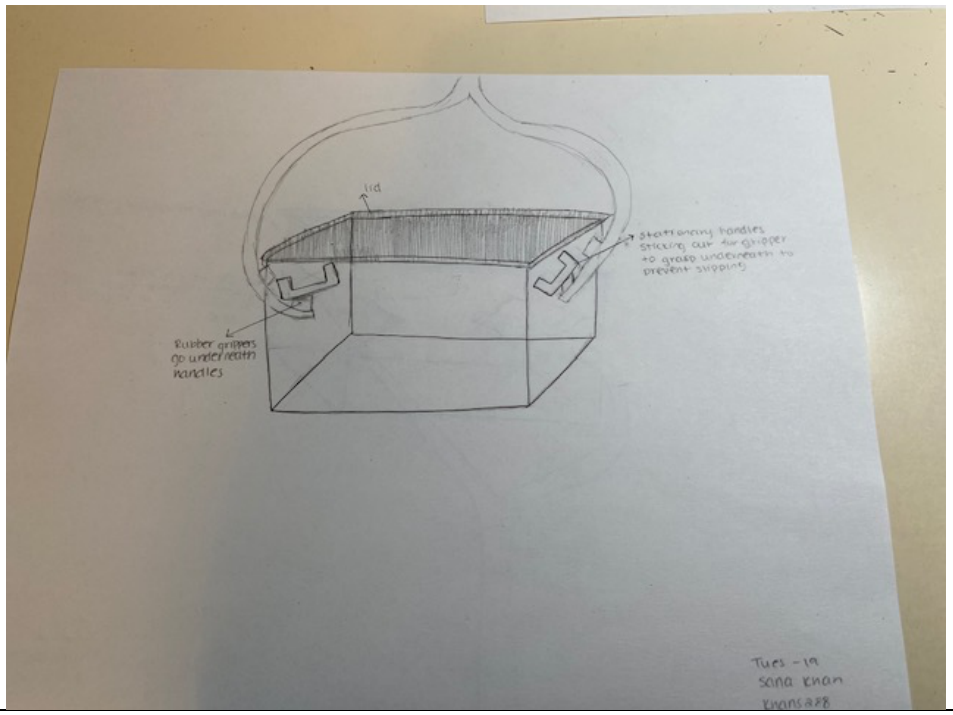

Tool Plate
Claw holds here
heavy material at the bottom to make it more stable.

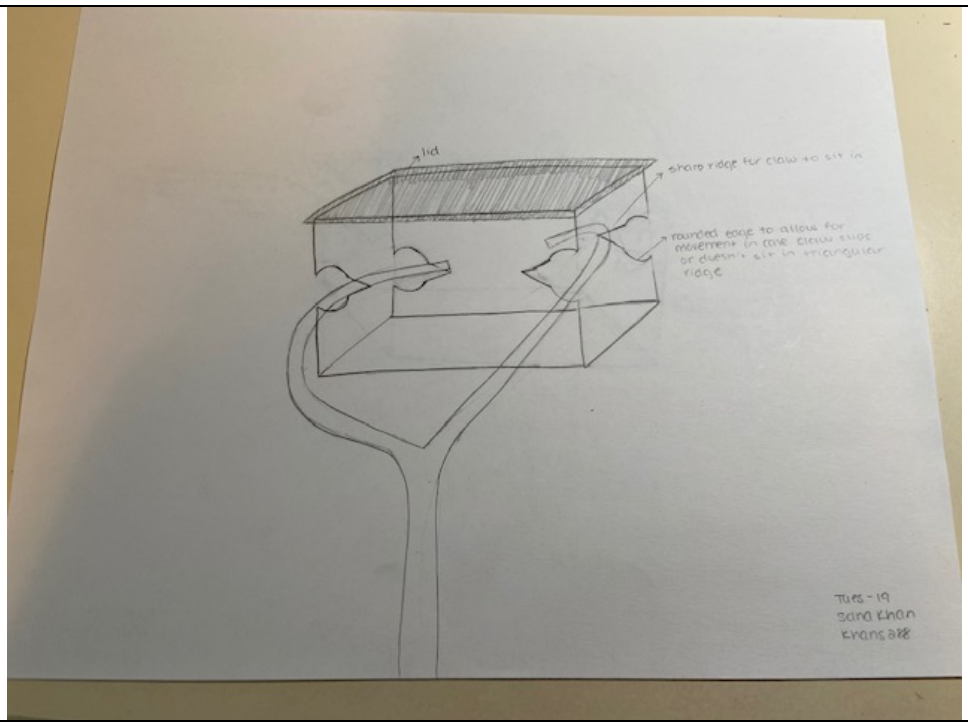
Team Number: Tues19

Team Number: Tues19

Name: Sana Khan	MacID: khans288

Insert screenshot(s) of your concept sketches below

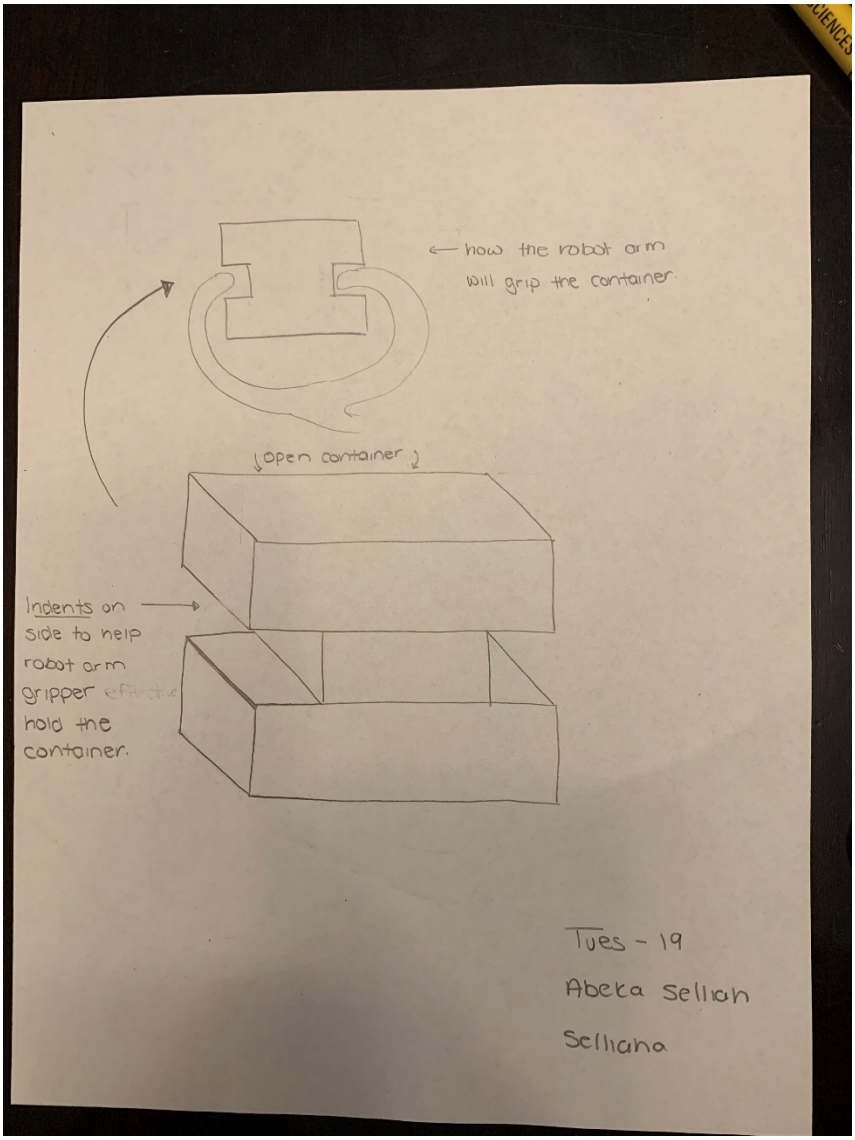


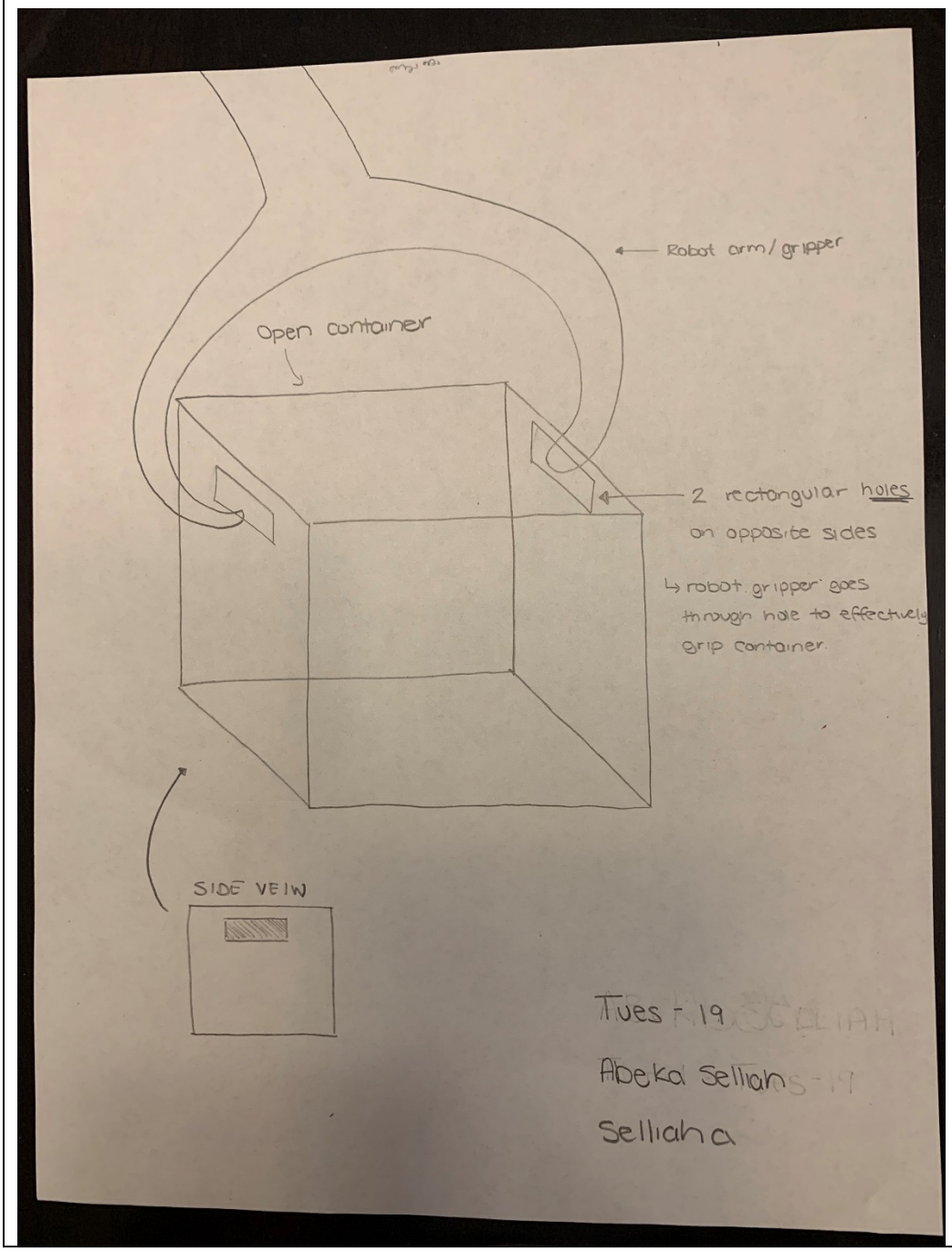

lid
sharp ridge for claw to sit in
rounded edge to allow for movement in case claw slips or doesn't sit in triangular ridge
Tues - 19
Sara Khan
kkans288

Team Number: Tues19

Name: Abeka Selliah	MacID: selliaha

Insert screenshot(s) of your concept sketches below





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