

## PROJECT THREE: MILESTONE 3 – COVER PAGE

Team Number: Tues-24

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

Full Name:	MacID:
Borna Sadeghi	sadegb1
Amir Rayyan Khan	khana344
Zhenyu Zhao	zhaoz154
Ehsaan Khan	khane16

## MILESTONE 3 (STAGE 1A) – WORKFLOW PSEUDOCODE (COMPUTATION SUB-TEAM)

Team Number: 

Tues-24
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You should have already completed this task individually *prior* to Design Studio 15.

1. Write out a pseudocode outlining the *high-level workflow* of your computer program on the following page
  - Only one team member is responsible for this task (not *both*)
  - Be sure to clearly indicate who each code belongs to

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 pseudocode with the **Milestone Three Individual Worksheets** document so that it can be *graded*
- Compiling your individual work into this **Milestone Three 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: Tues-24

Name: Amir Rayyan Khan

MacID: khana344

Write out a pseudocode outlining the **high-level workflow** of your computer program in the space below.

>>>start

If position q-arm = home and if position q-bot = home:

Determine container attributes(mass)

If container mass = X:

Destination = paper bin

Elif container mass = Y

Destination = plastic bin

Elif container mass = Z

Destination is garbage bin

q-arm moves next to the container

q-arm closes gripper

q-arm moves towards hopper

q-arm opens gripper

q-arm position = home

repeat till 3 containers on hopper or totalmass is >90 or ID is different in the sorting station compared to the hopper

q-bot moves forward

detectedcolour = sensor detects colour

if detectedcolour = paperbin colour

bin = paper bin

if detectedcolour = plasticbin colour

bin = plastic bin

if detectedcolour = metalbin colour

*bin = metal bin*

*if detectedcolour = garbagebin colour*

*bin = garbage bin*

*if bin = destination bin*

*tilt hopper to empty container into the bin*

*hopper position back to zero*

*go back to home position*

*repeat above^*

## MILESTONE 3 (STAGE 1B) – WORKFLOW FLOWCHART / STORYBOARD (COMPUTATION SUB-TEAM)

Team Number: Tues-24

You should have already completed this task individually *prior* to Design Studio 15.

1. Only one team member is responsible for this task (not *both*)
2. Copy-and-paste your flowchart or storyboard on the following page  
→ Be sure to include your Team Number, Name and MacID
3. Take a photo of your flowchart / storyboard
4. Insert your photo as a Picture (Insert > Picture > This Device)

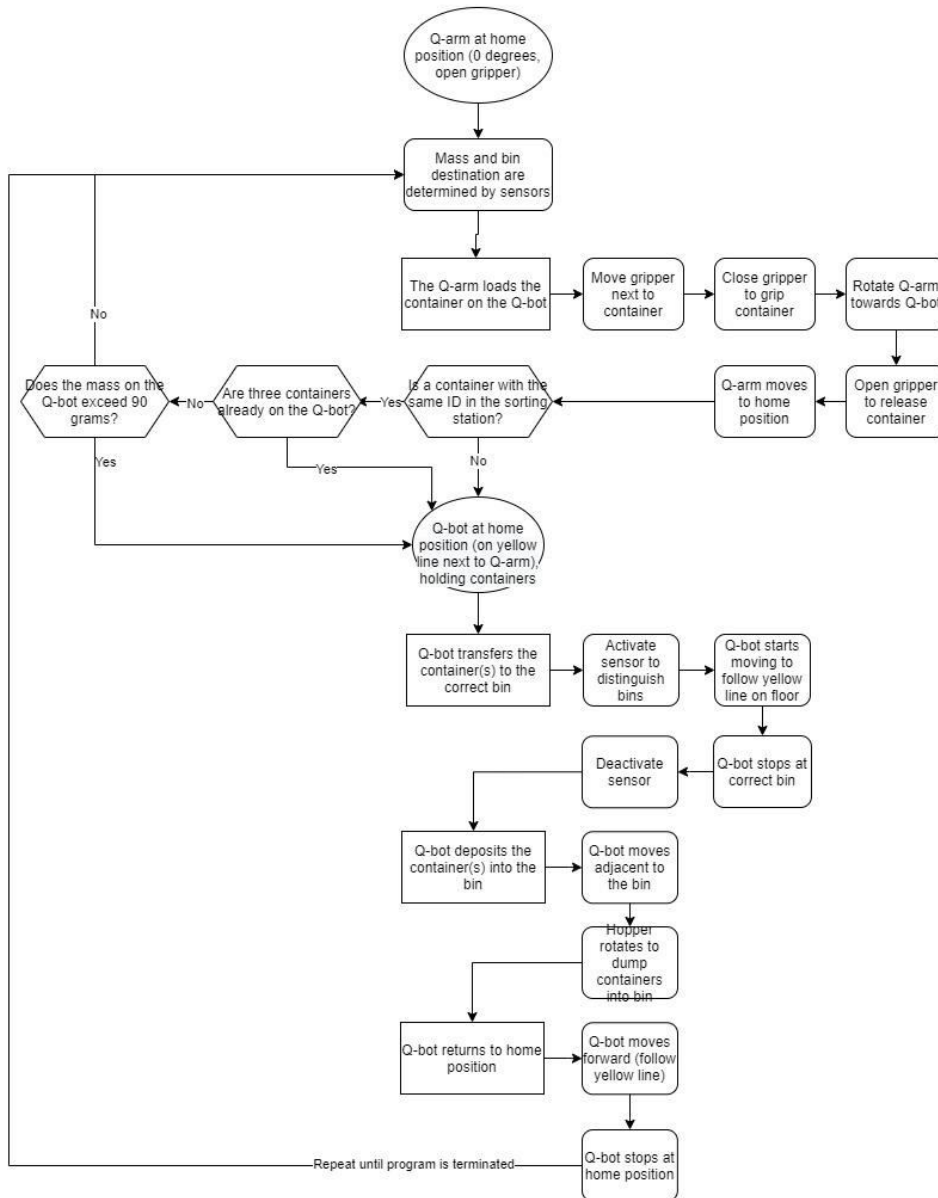
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their flowchart/storyboard screenshots with the **Milestone Three Individual Worksheets** document so that it can be *graded*
- Compiling your individual work into this **Milestone Three 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

Name: Borna Sadeghi

MacID: sadegb1

Insert screenshot(s) of your flowchart or storyboard.



## MILESTONE 3 (STAGE 2) – DETAILED SKETCHES (MODELLING SUB-TEAM)

Team Number: Tues-24

You should have already completed this task individually *prior* to Design Studio 15.

1. Copy-and-paste each sub-team member's detailed 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:

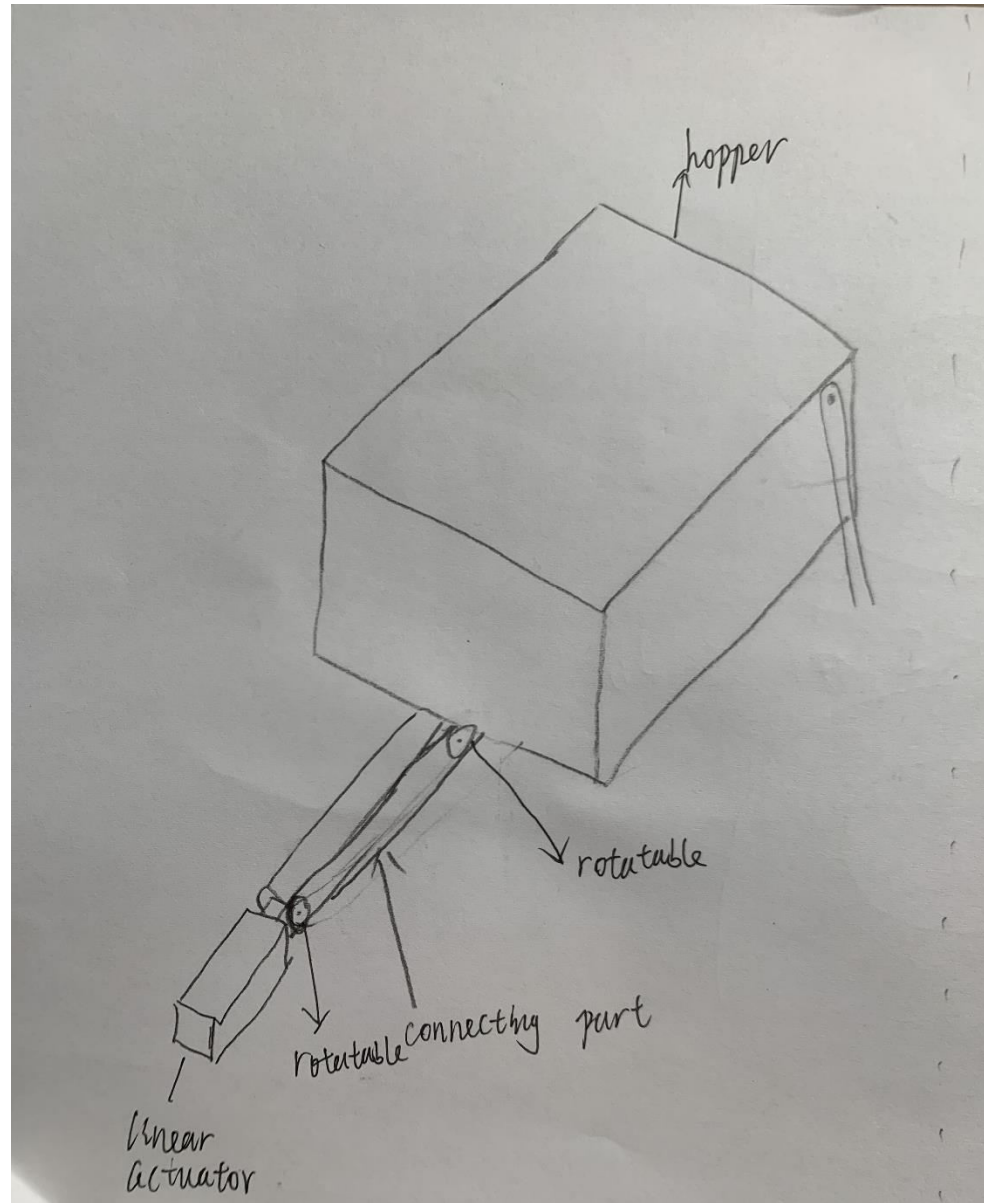
- Each team member needs to submit their detailed sketches with the **Milestone Three Individual Worksheets** document so that it can be *graded*
- Compiling your individual work into this **Milestone Three Team Worksheets** document allows you to readily access your team member's work
  - This will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

Team Number: Tues-24

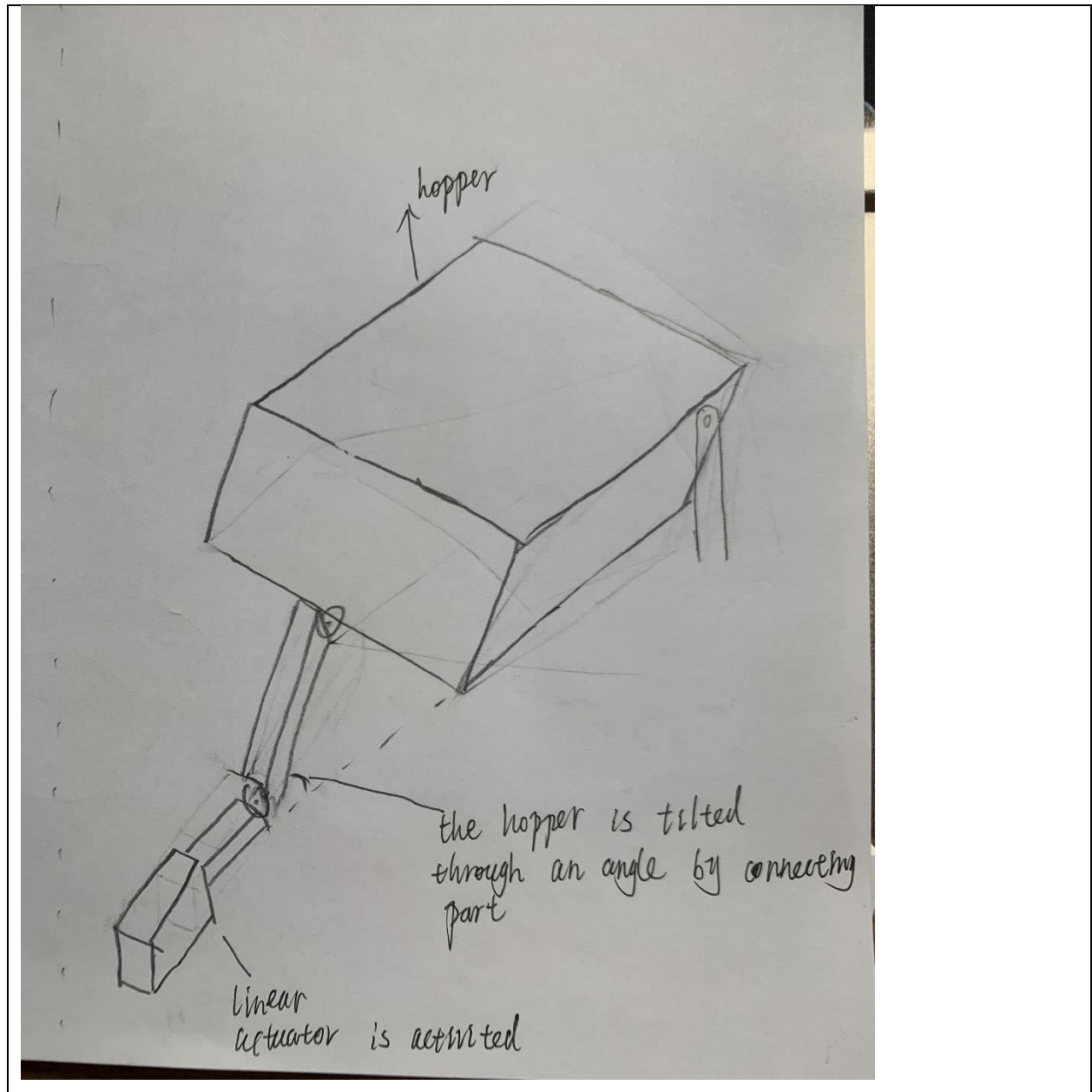
Name: Zhenyu Zhao

MacID: zhaoz154

Insert screenshot(s) of your detailed sketch below.





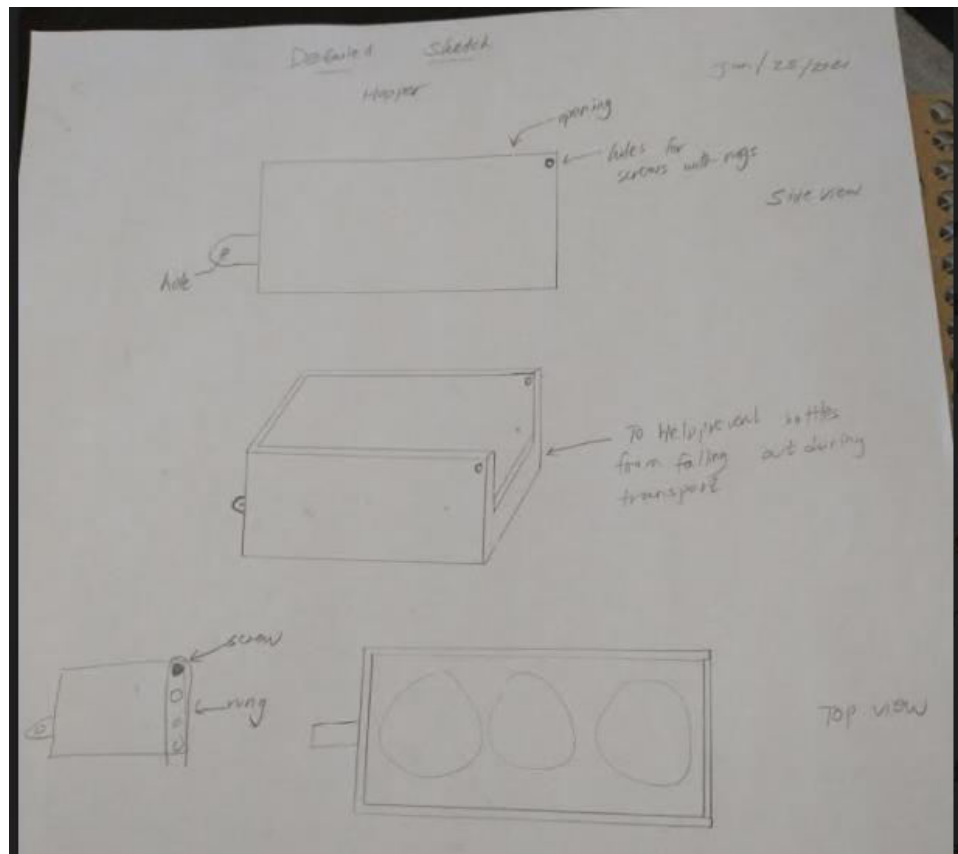


Team Number: Tues-24

Name: Ehsaan Khan

MacID khane16

Insert screenshot(s) of your detailed sketch below.



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

## MILESTONE 3 (STAGE 3) – PROGRAM TASK PLANNING (COMPUTATION SUB-TEAM)

Team Number: **Tues-24**

1. As a team, write out the pseudocode or create a flowchart for the indicated tasks in the space below.
  - If creating a flowchart, complete your flowchart on a separate sheet of paper, take a photo of your sketch and insert photo as a Picture (Insert > Picture > This Device)

### Dispense Container

# Container is dispensed, turntable rotates, sensor classifies container, rotate turntable so container is closest to Q-arm

Drop container from chute

Classify container with sensor (keep track of these types in a list)

If no item appears 3+ times, fill slots until either slots full or 3 of a kind

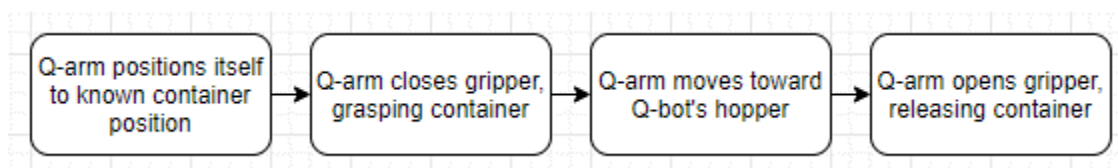
The most frequently occurring container is rotated to "index 6" (directly in front of the Q-arm)

If there is a tie, take the containers that minimize rotation distance in order to pick them all up

Afterwards, rotate the empty slots to "index 0, ," (where the chute is) and repeat

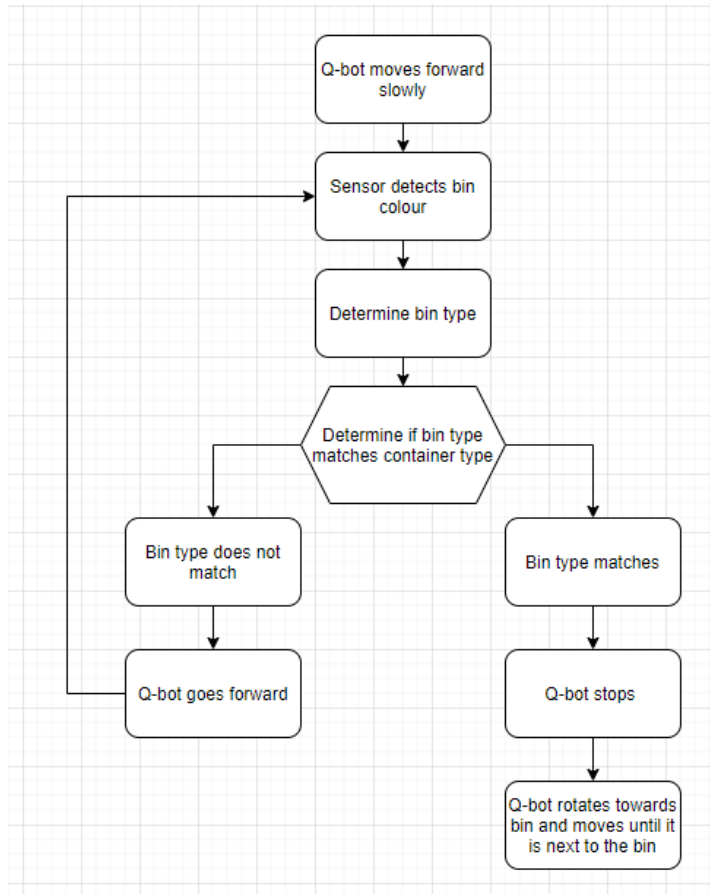
### Load Container

# Q-arm picks up container and moves it to Q-bot's hopper



## Transfer Container

# Q-bot to recycling station (identify bins in the process)



## Deposit Container

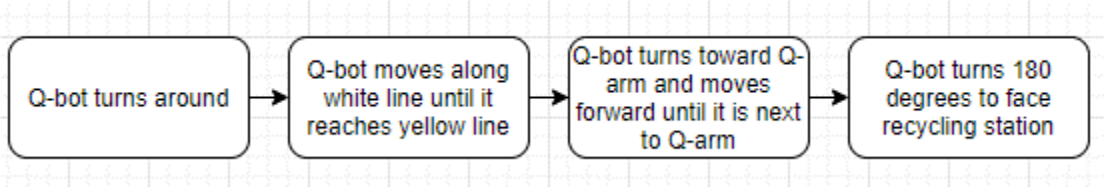
# Q-bot dumps the containers into the bin

Rotate hopper into the bin as much as possible to ensure all the containers are deposited

Rotate hopper back to normal position

## Return Home

# Q-bot moves back to Q-arm's side



## MILESTONE 3 (STAGE 4) – PRELIMINARY MODELLING (MODELLING SUB-TEAM)

Team Number: Tues-24

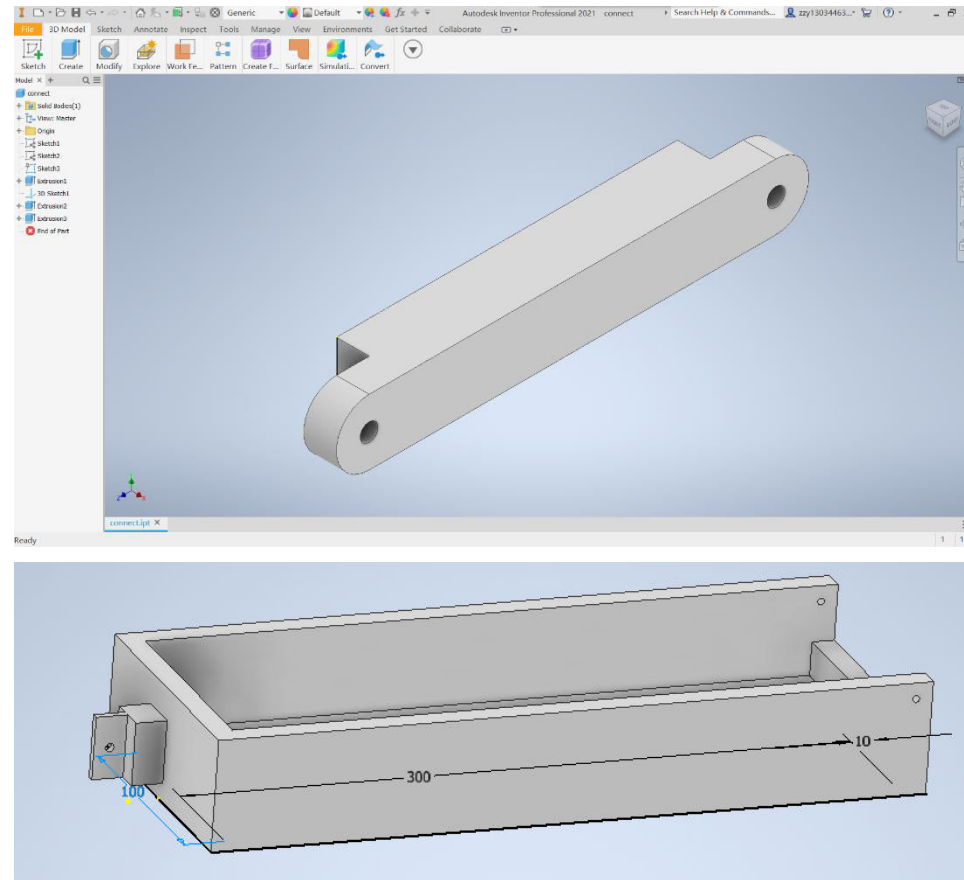
1. As a team, create solid models of the various components of your device in Autodesk Inventor, based on the detailed sketches.
  - Take multiple screenshots of each solid model you create
  - Insert your photo(s) as a Picture (Insert > Picture > This Device)
  - **Do not include more than two solid modelling screenshots per page**

Team Number: Tues-24

Name: Ehsaan Khan, Zhenyu Zhao

MacID khane16, zhaoz154

*Insert screenshot(s) of your model below.*



\*Limit screenshots to no more than 2 per page. For additional screenshots, please copy and paste the above on a new page