PROJECT THREE: MILESTONE 3 – COVER PAGE

Team Number: Thurs-48

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

Full Name:	MacID:
Moly Mikhail	Mikham16
Maryam Butrus	butrusm
Rafey Malik	malika87
Ronit Ahuja	ahujar2

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

Team Number: Thurs-48

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: Thurs-48

Name: Rafey Malik	MacID malika87

```
Def Getcontainerid(reading):
    Returns the ID
Def Getcontainerattributes(ID):
    Returns the material, weight, and destination bin based on the ID
Def transfer(destination bin):
    While sensor_reading != destination bin:
        Stop moving the Q-bot
        Sensor_reading of next bin
        Move distance to next bin

    Deactivate sensor
    Move Q-bot adjacent to the bin
    Rotate hopper until weight = 0
    Return Q-bot to home position


Def pickup():
    Q-bot container id = []
    While True:
        Drop container
        Rotate table until it is under the sensor
        Get container id function (reading from sensor)
            Q-bot container id.append(new ID)
        Get container attributes function( ID)
```

```
        Q-arm moves adjacent to the container
        Q-arm closes the gripper
        Q-arm moves the container to the hopper on the Q-bot
        Q-arm opens the gripper
        Q-arm moves to its home position

    If containerID not in Q-bot container ID:
            Transfer(bin location)
            Q-botcontainerID = [] #empty the array
    Elif Q-bot container ID length == 3:

            Transfer(bin location)
            Q-botcontainerID = [] #empty the array
    Elif mass*length of Q-bot container ID > 90:
            Transfer(bin location)
            Q-botcontainerID = [] #empty the array
```

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

Team Number: Thurs-48

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)

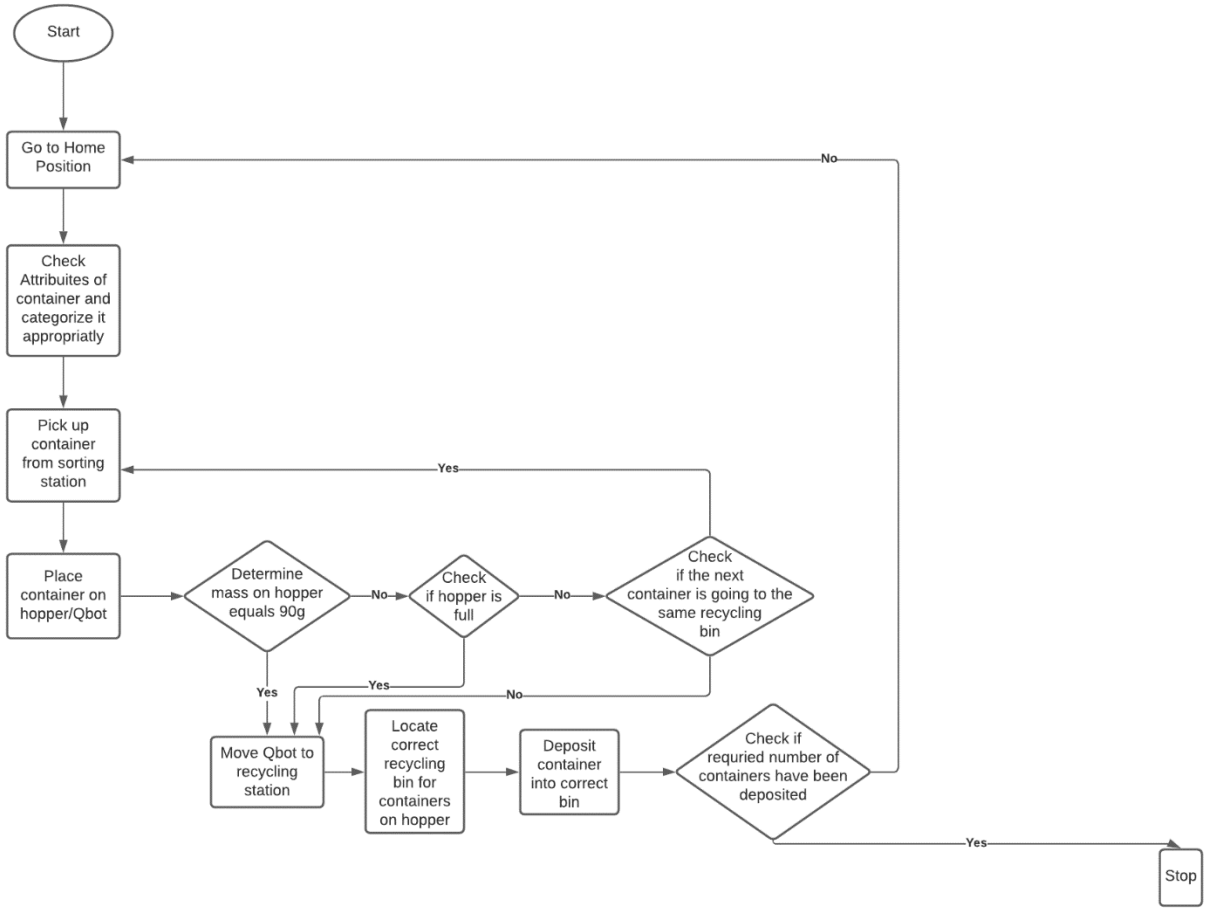
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- 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

Team Number: Thurs-48

Name:Moly Mikhail	MacID Mikham16

Insert screenshot(s) of your flowchart or storyboard.



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

Team Number: Thurs-48

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

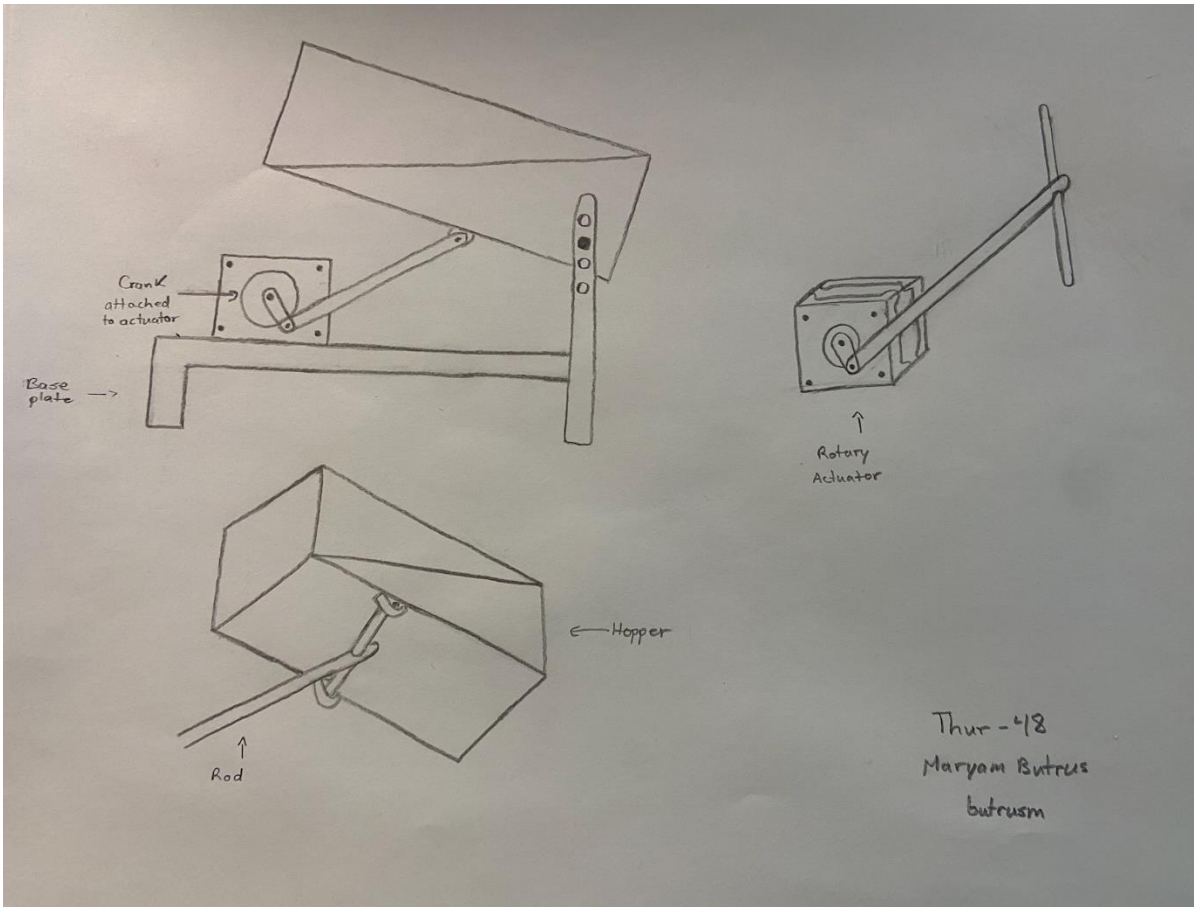
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- 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: Thurs-48

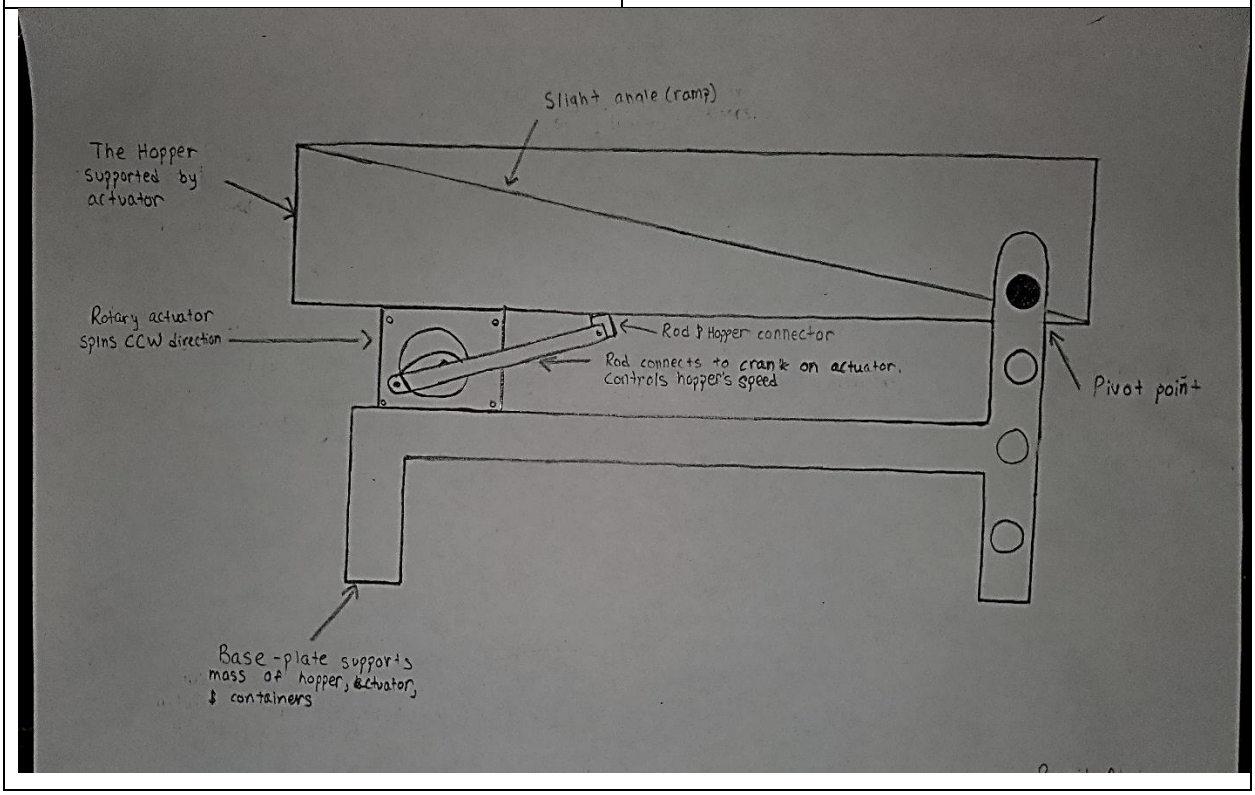
Name: Maryam Butrus	MacID: butrusm

Insert screenshot(s) of your detailed sketch below.



Team Number: Thurs-48

Name: Ronit Ahuja	MacID: ahujar2



*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: Thurs-48

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

Generate a random number between 1 and 6 (inclusive)

Find properties (material, mass and bin ID) of container using random number

Dispense container that relates to random number

Load Container

```
While True:
        Q-arm moves adjacent to the container
        Q-arm closes the gripper
        Q-arm moves the container to the hopper on the Q-bot
        Q-arm opens the gripper
        Q-arm moves to its home position
        If containerID not in Q-bot container ID:
                Transfer(bin location)
               break
        Elif Q-bot container ID length == 3:


                Transfer(bin location)
                break
       Elif mass*length of Q-bot container ID > 90:
                Transfer(bin location)
               break
```

Transfer Container

Function inputs: bin location ##this will be the color of the desired bin

Q-bot moves forward and follows line on the floor

Q-bot stops once it arrives at recycling station

Q-bot enables color sensor

Q-bot uses color sensor at each bin

While True:

    If sensor reading matches color of desired bin:

        Deposit container

        Break

    Else move forward to the next bin

Deposit Container

Move Q-arm adjacent to the bin

Rotate the hopper until it is 60 degrees above container

Return Home

Q-bot follows the yellow line backwards until it reaches the initial position

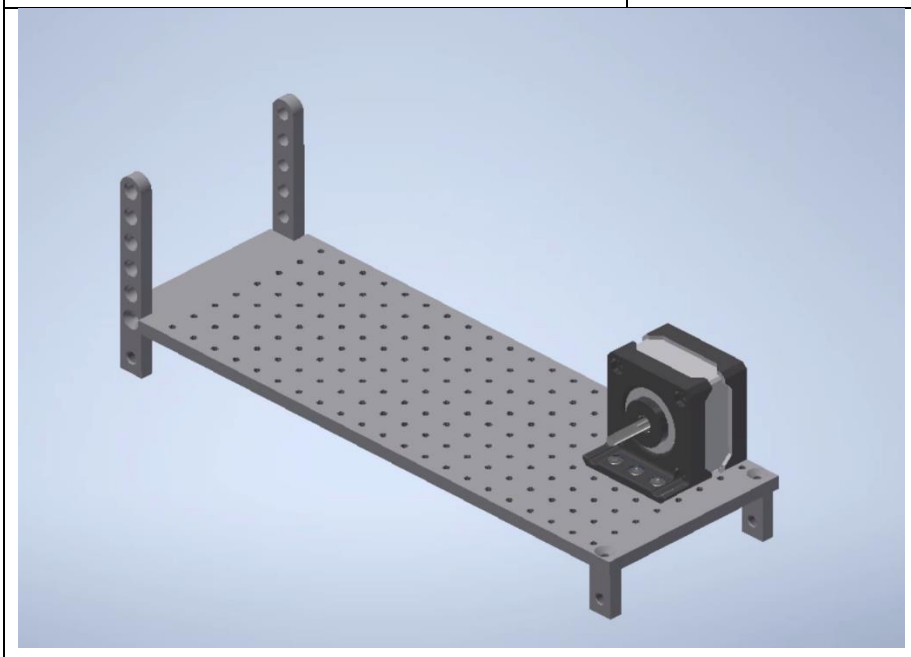
MILESTONE 3 (STAGE 4) – PRELIMINARY MODELLING (MODELLING SUB-TEAM)

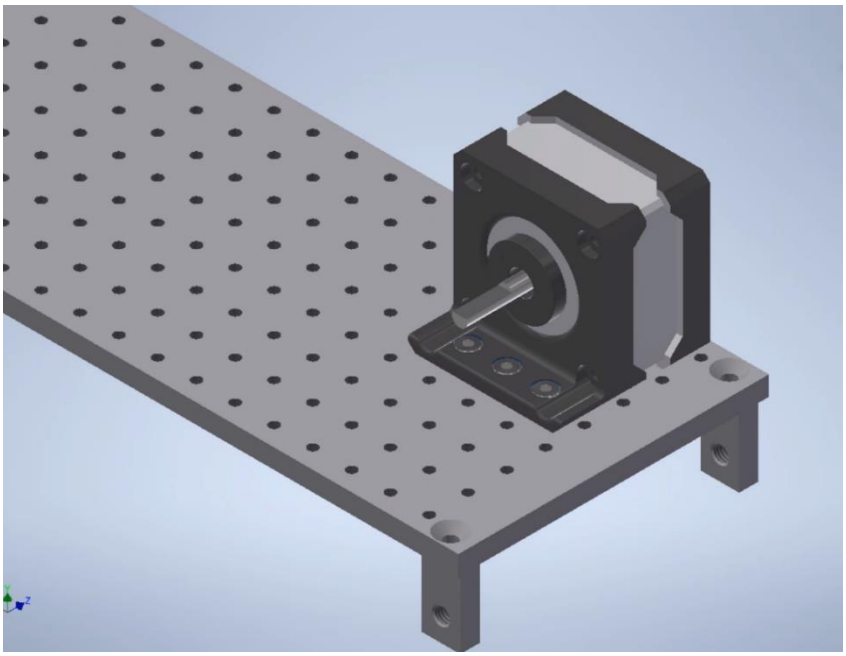
Team Number: Thurs-48

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: Thurs-48

Name: Maryam Butrus	MacID: butrusm



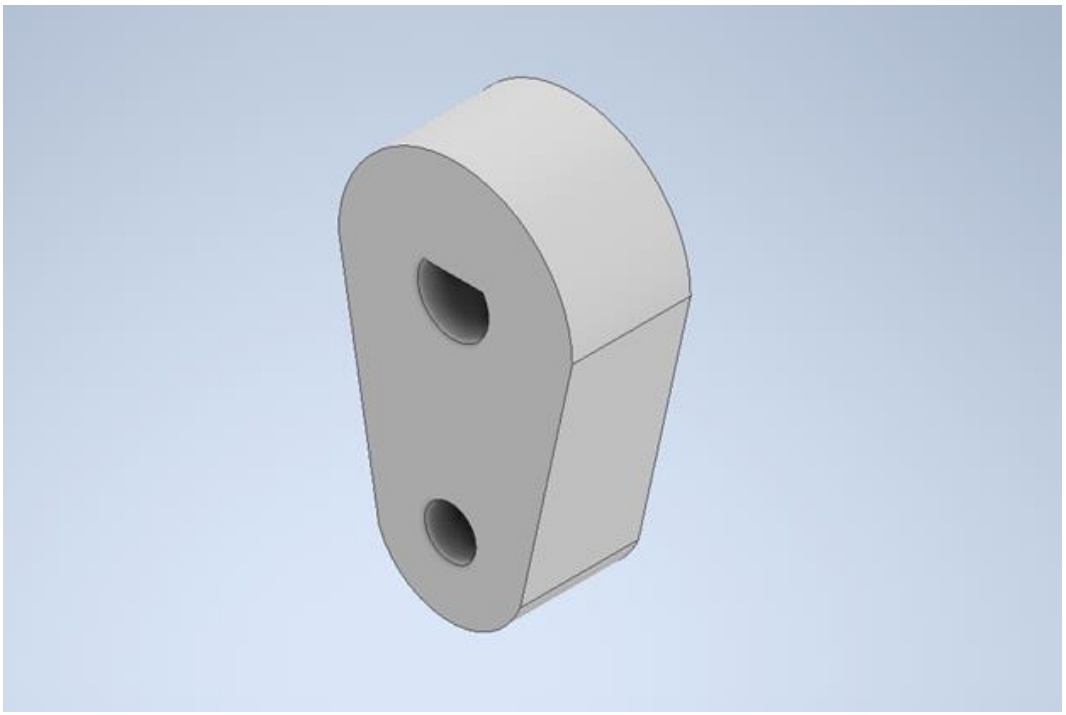


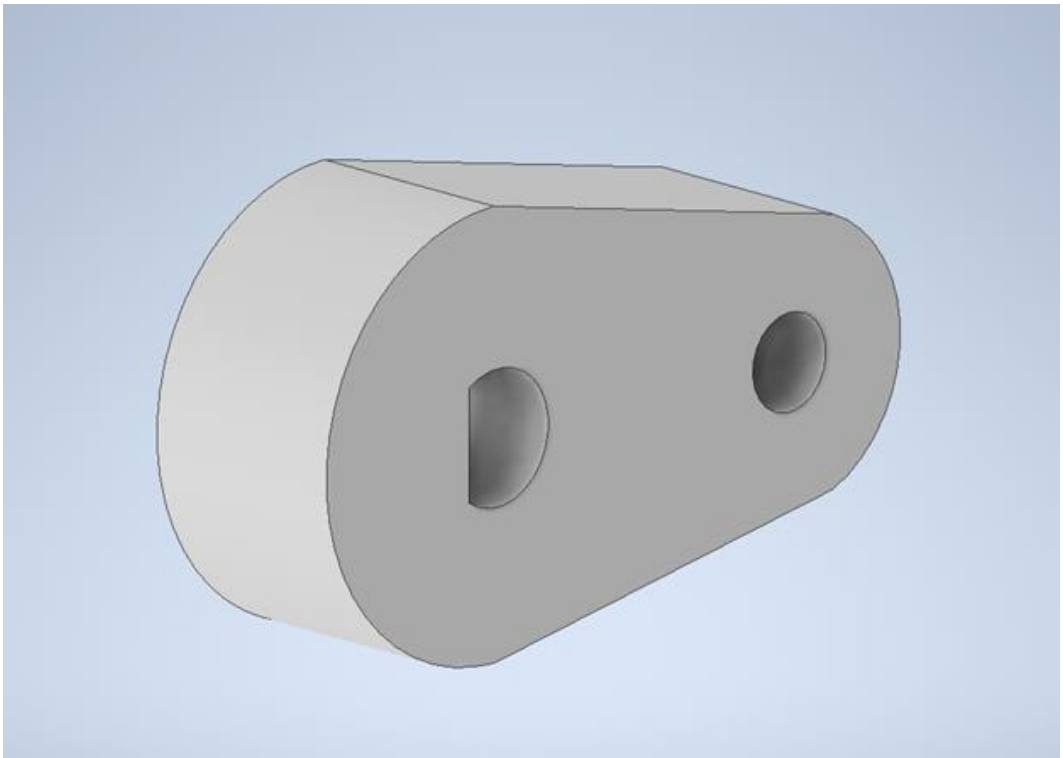
*Limit screenshots to no more than 2 per page. For additional screenshots, please copy and paste the above on a new pages

Name: Ronit Ahuja	MacID: ahujar2

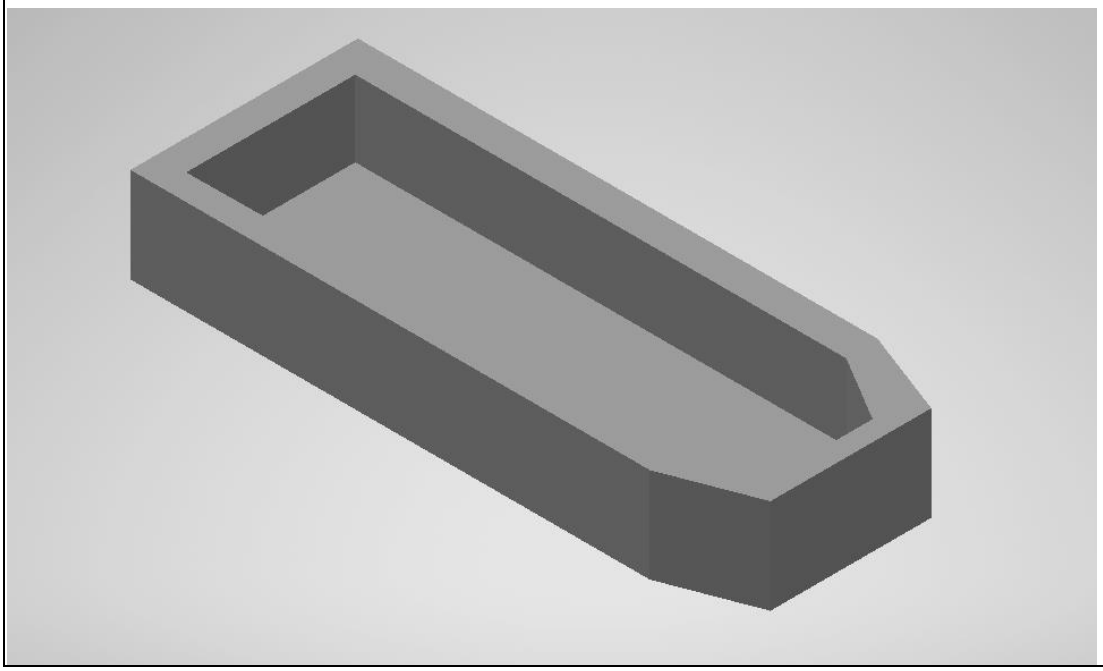
Insert screenshot(s) of your model below.

Crank:





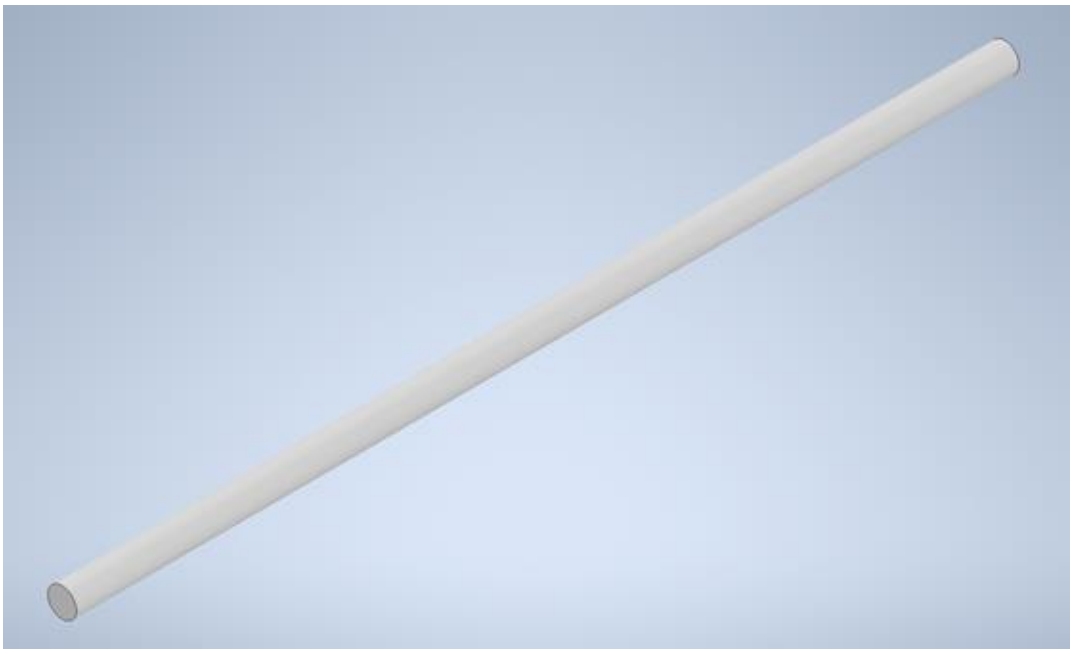
Adjusted Hopper Design

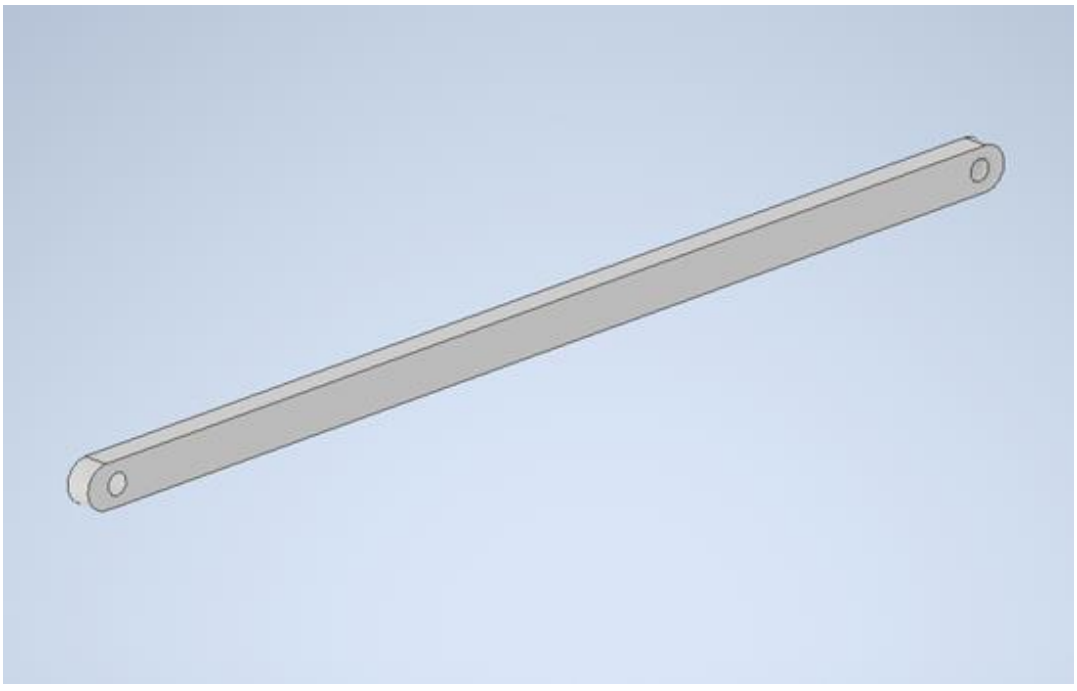


Name: Maryam Butrus	MacID: butrusm

Insert screenshot(s) of your model below.

Connecting Rods #1 and #2:





Name: Maryam Butrus	MacID: butrusm

Part connecting the rod to the hopper: