MPROJECT TWO: MILESTONE 1 – COVER PAGE

Team Number: Mon-04

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

Full Name:	MacID:
Longpan Zhou	zhoul83
Mark Benn	bennm1
Nicholas Fabugais-Inaba	fabugain
Josh Blanchard	blancj4

MILESTONE 1 (STAGE 1) – PRE-PROJECT ASSIGNMENT

Team Number: Mon-04

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: Mon-04

Name: Longpan Zhou	MacID: zhoul83

Objectives

- Minimize materials use
- Easy to make (3D print)
- Simple assembly
- Easy to hold and transfer by Q-arm

Constraints

- Container's size fits in the autoclave
- Container matches given footprint
- Enough space for placing surgical tools
- Light weight (less than 350g)
- Fast 3D print (less than 2 hours)
- All features greater than 4mm in size
- Assembly of any comments should not impede functionality of the container

Functions

- Stores surgical tools in container
- Securely hold the surgical tool in place such that its movement is restricted for transfer
- Allows surgical tools to be facilitate sterilization
- Separate tools from the outside

Team Number: Mon-04

Name: Nicholas Fabugais-Inaba	MacID: fabugain

Objectives

- Easy to transport
- Easy to make

Constraints

- Container light (less than 350 g)
- Less than 2 hours to make (3D print)
- Wide enough for claws to grab it
- Fits inside autoclave

Functions

- Able to hold the surgical tools
- Able to be picked up
- Securely protects the tools

Team Number: Mon-04

Name: Mark Benn	MacID: bennm1

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

Objectives

- *Easy to manufacture*
- *Fast to manufacture ‘*
- *Inexpensive*

Constraints

- *Can be placed into the autoclave*
- *Can be manipulated by the arm*
- *Generally fits set geometric constraints*

Functions

- *Hold materials inside*
- *Keep contents isolated from the outside world*
- *Claw can pick it up*
- *Keep contents safe*

Team Number: Mon-04

Name: Josh Blanchard	MacID: blancj4

Objectives

- *Reusable*
- *Easy to make*
- *Easily transported*

Constraints

- *Fits inside autoclave*
- *Fits within fingers of gripper*
- *Able to be 3D printed (material, dimensions)*

Functions

- *Separates tools from outside*
- *Closes firmly*
- *Allows for sterilization*
- *Allows for pickup*

*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: Mon-04

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 reusable	Sized to fit inside the autoclave	Stores contents inside container
Easy to make (3D print etc)	Light weight (less than 350g)	Keep contents safe from outside
Effective use of materials	Container must fit in the assigned footprint.	Holds contents in place
Easy to transfer	3D printing (less to 2 hours)	Allows tools for sterilization
Easy assembly	All features be greater than 4mm in size	

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

Transport tools to be sterilized in autoclave

3. What are the secondary functions?

Allows tools for sterilization
Securely holds tools in place
Stores tools inside container

MILESTONE 1 (STAGE 3) – MORPHOLOGICAL ANALYSIS

Team Number: Mon-04

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	Pressure/ friction	Velcro	Slots	magnets	Ball/joints	Slots (like a forklift)
Transfer	Arm	Launch plate	Conveyor belt	Overhead cable system	Trampoline	Projectile
Hold in place	Magnets	Strong friction for rug	Zip ties	Cut out	Velcro	clamps

MILESTONE 1 (STAGE 4) – CONCEPT SKETCHES

Team Number: Mon-04

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

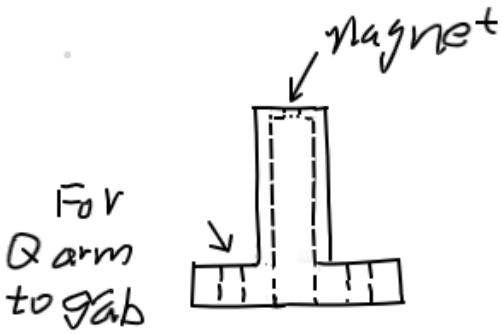
1. Each team member should copy-and-paste the photo of their individual concept sketches in the space indicated on the following pages
   → The photo's should be the same one your included in the **Milestone One Individual Worksheets** document
   → Be sure to include your **Team Number** on each page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

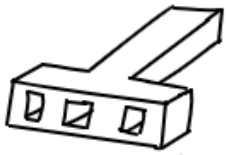
We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

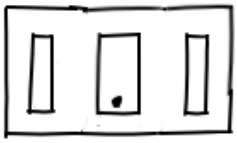
- Each team member needs to submit their sketch with the **Milestone One Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone One Team Worksheets** document allows you to readily access your team member's work

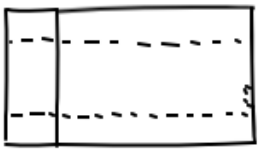
Team Number: Mon-04

Name: Longpan Zhou	MacID: zhoul83

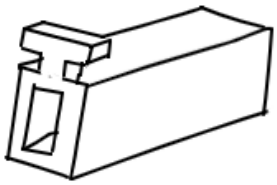


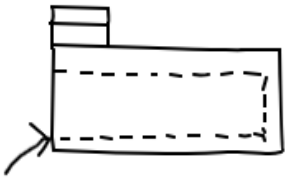






Longpan Zhou
zhoul83
Mon-04





Q-arm holds here

Strong friction material req

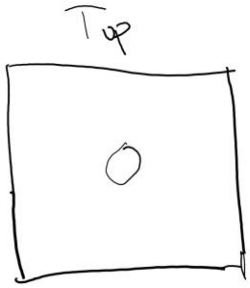
Long Pan Zhou

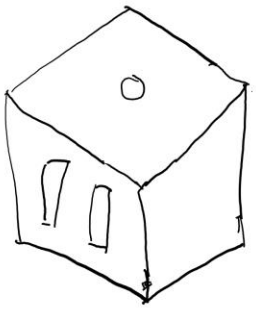
Zhou83

Mon-04

Team Number: Mon-04

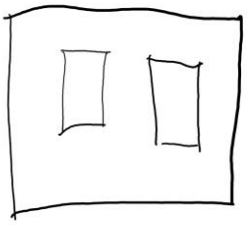
Name: Nicholas Fabugais-Inaba	MacID: fabugain

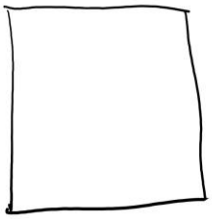




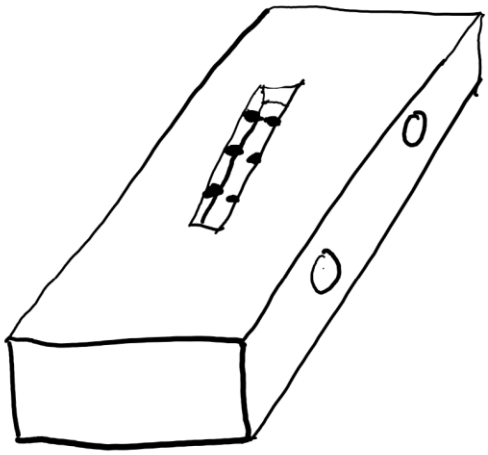
*claws go into rectangle slots
*Tools go into hole

Mon-04





Nicholas Fabugais-Inaba
fabugain
11/02/20
Nicholas Fabugais-Inaba
1:1



*Circles represent magnets

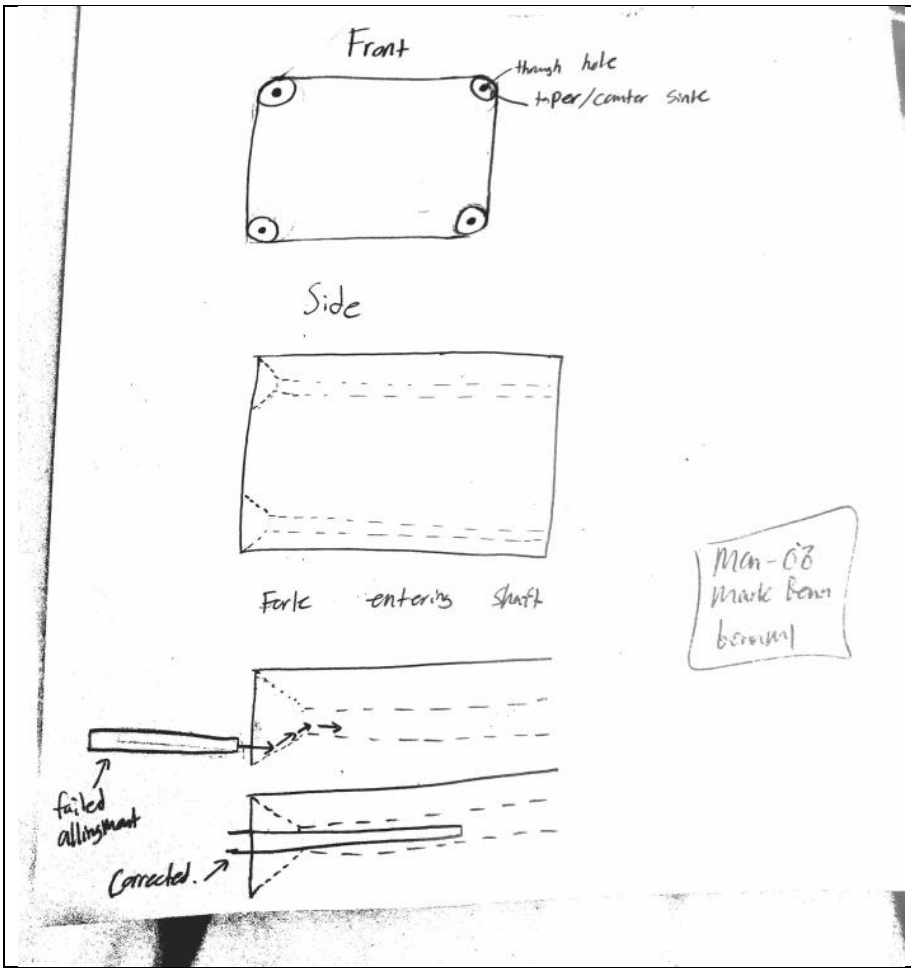
*Back spots secure tool in place

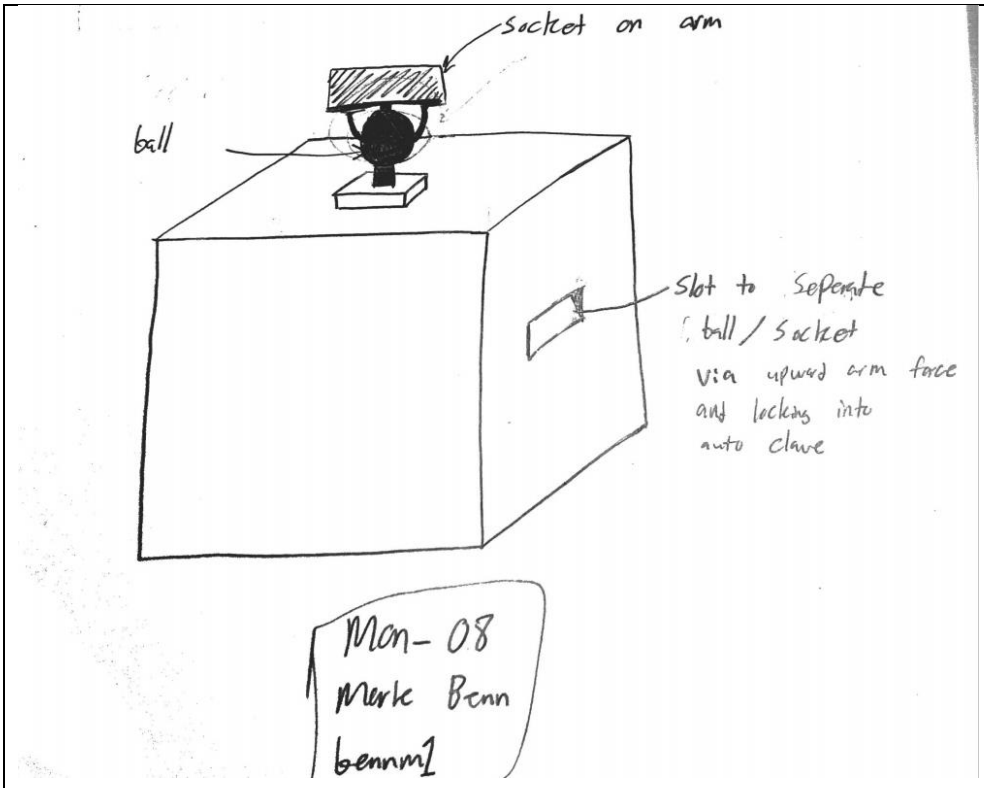
Mon-04

Nicholas Fabugais-Inaba
fabugain
11/02/20
Nicholas Fabugais-Inaba
1:1

Team Number: Mon-04

Name: benn mark	MacID: bennm1
Insert screenshot(s) of your concept sketches below	

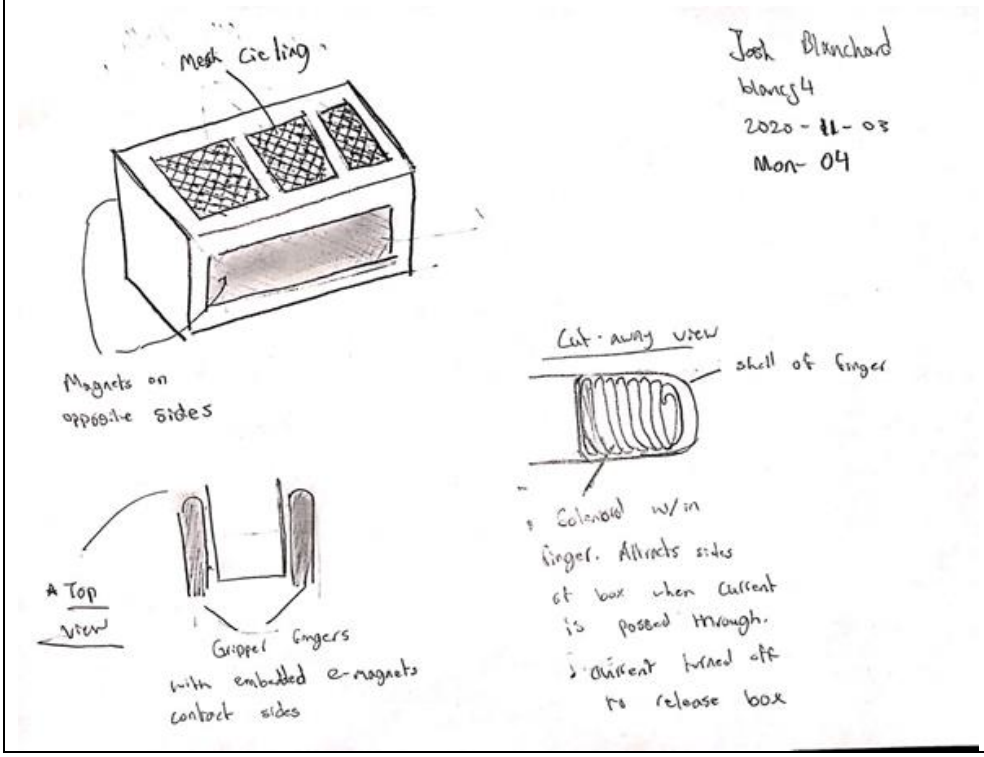

Front
through hole
taper/center sink
Side
Fork entering shaft
failed alignment
Corrected.
Man-08
Mark Bowen
borrowed

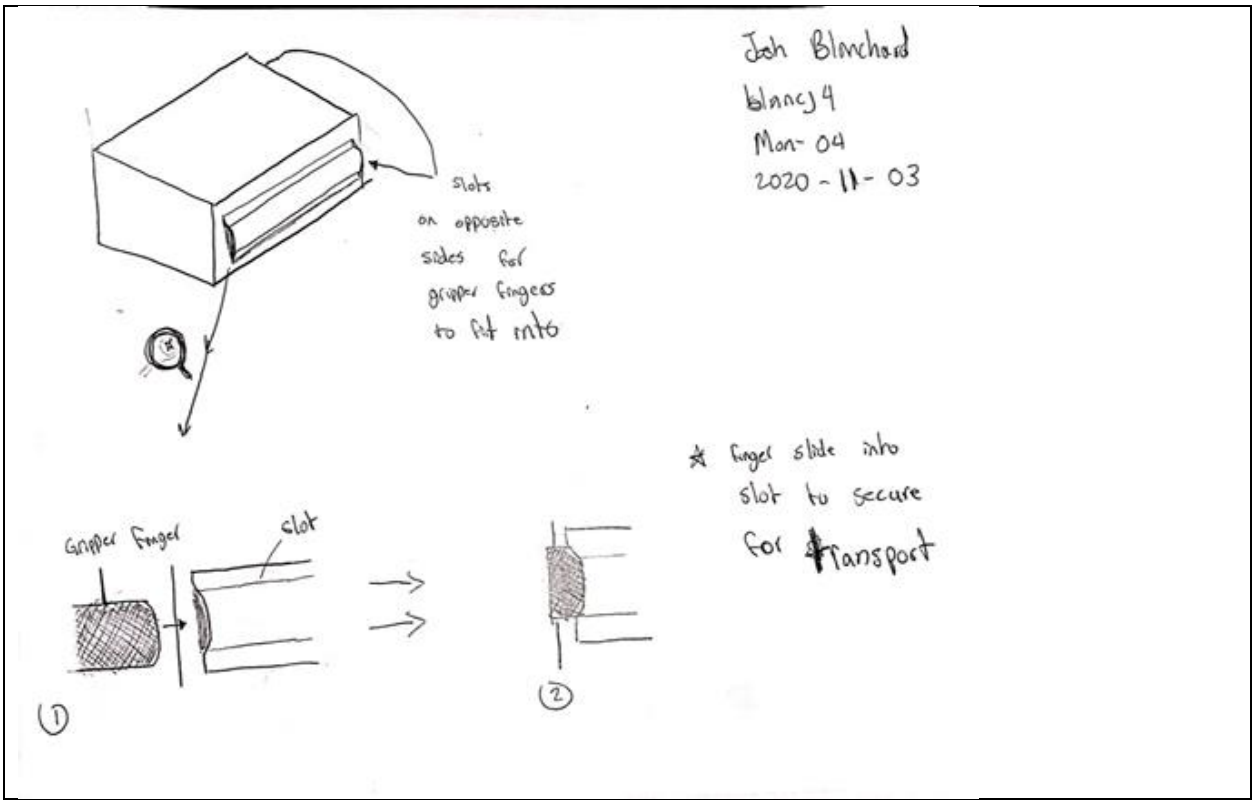


Mon- 08
Merle Benn
bennm1

Team Number: Mon-04

Name: Josh Blanchard	MacID: blancj4





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