Hozhoni Foundation Button Maker

Presentation 3, ME 476C
Dr. Sarah Oman

Outline

Team Members and Roles

Team Name: The Hozhoni Button Makers

Dylan Oliva, *Project Manager*

Ryan Torres, *Customer Contact*

Bryce Igo, *Budget Manager*

Abdulah Almerri, *Web Developer*

Kristen Rieger, *Primary Author*

Sponsor and Client:

Current Sponsors:

- W. L. Gore and Associates

Client:

- Hozhoni foundation

Stakeholders:

- Hozhoni Clients who will use the button-maker to generate income

Abdullah Almerri

Project Description

- Modify Button Making Press at Hozhoni.
- Goal is to create more jobs for Hozhoni's clients.
- Objective is to design a product that's more accessible to Hozhoni's clients.

- Current design requires a lot of physical dexterity.
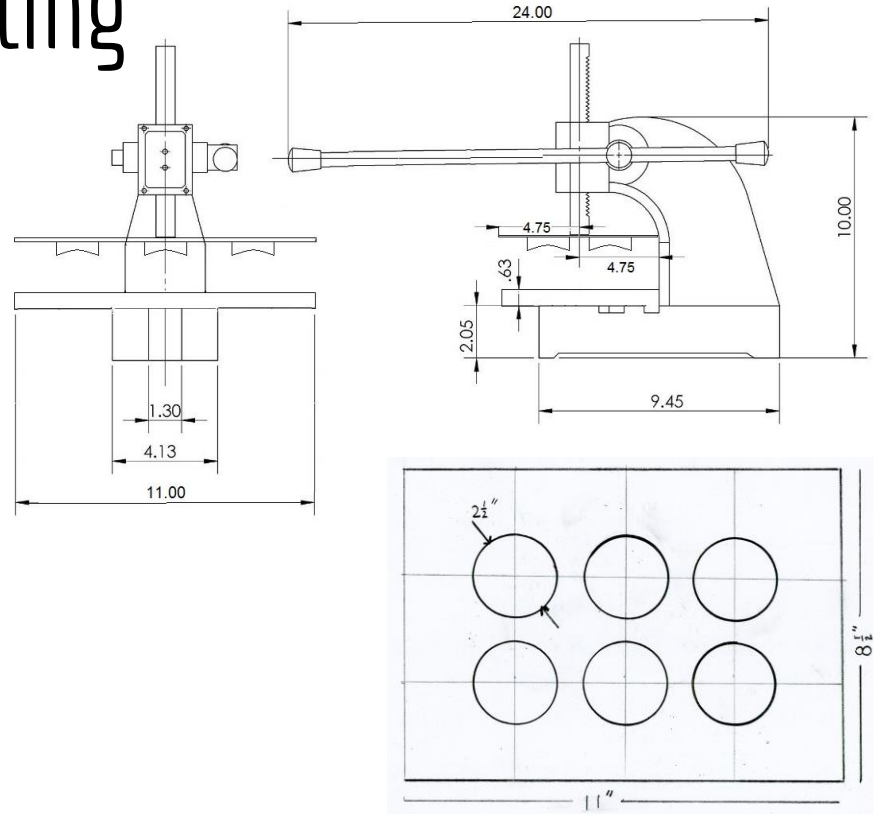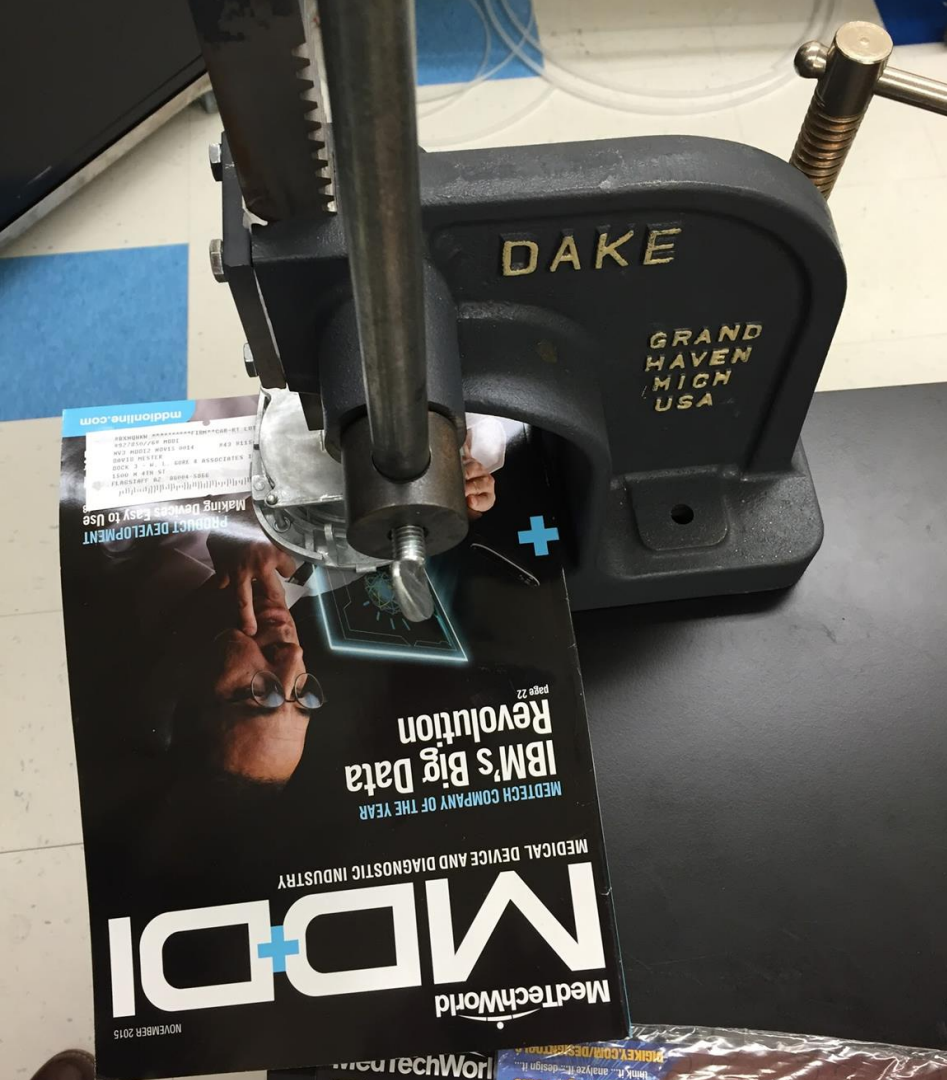- Break down: Cutting, Alignment, and the Press.

Dylan Oliva

Design Descriptions: Cutting

Modified arbor press:

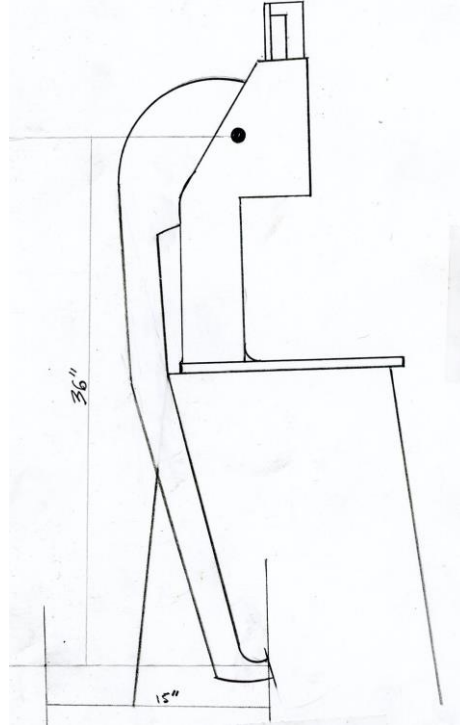- Cut multiple pieces of paper

- Cut all 6 images at once

- Fits budget

Bryce Igo

Ryan Torres

Design Description: Actuation of the Button Maker

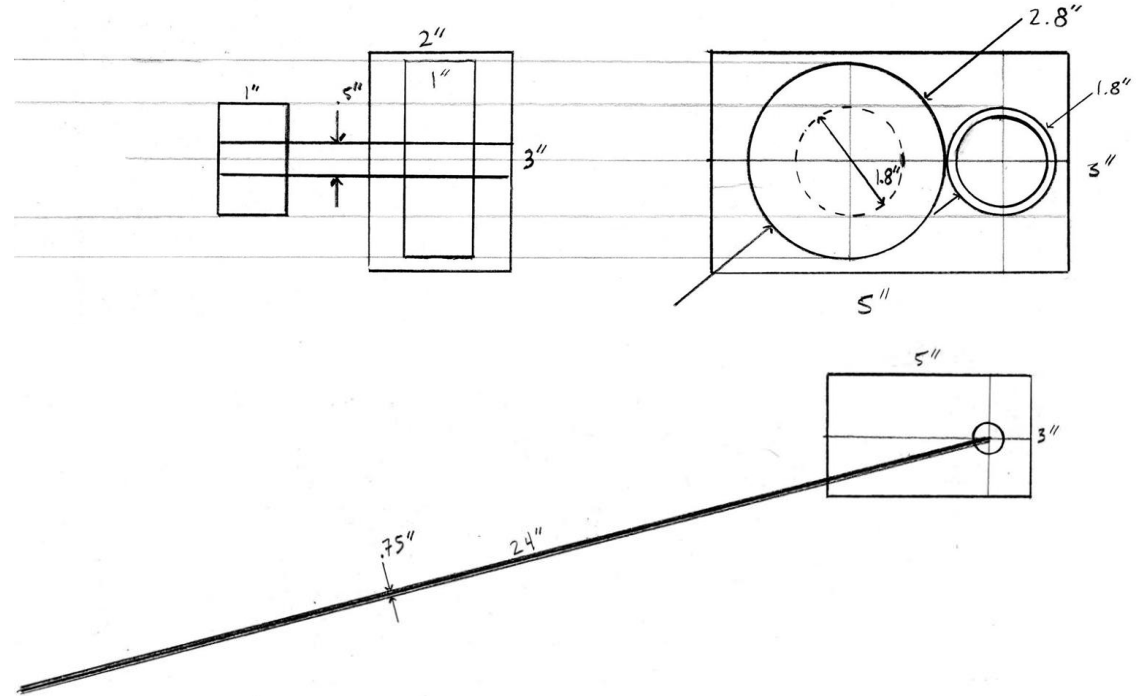For Foot Actuation:

- Add foot lever

- Removable

Bryce Igo

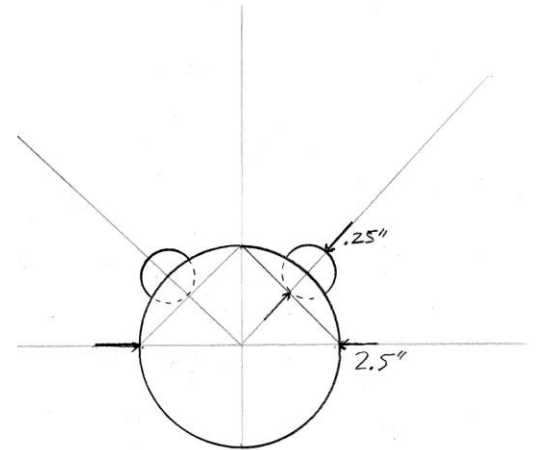# Design Description: Actuation of the Button Maker

For Arm Operation:
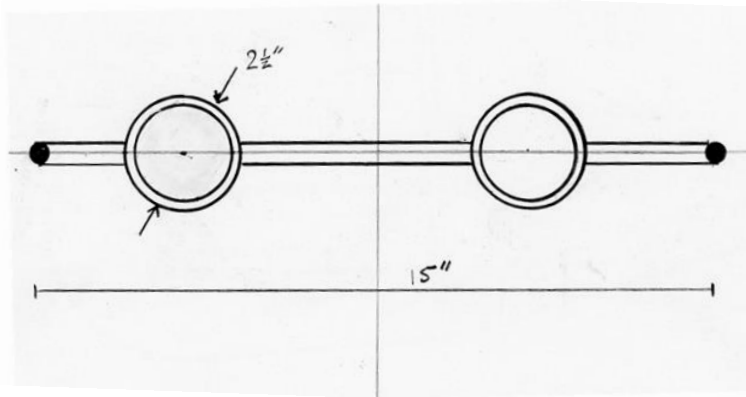
- Hand crank with front-mounted compound gear

- Ability to disengage gears

Bryce Igo

Design Descriptions: Alignment of Components

- Images to be cut into a "bear head" shape: the cut images will align with guides in the button maker dies; this will ensure that the images are aligned vertically. (See Proof-of-Concept prototype) Dies will move linearly rather than swivel.

Bryce Igo

Customer Requirements:

Actuation:

- Add Hand Actuation to Button Maker: The gear system and hand crank will allow more Hozhoni clients to use the machine.

- Increase Ease-of-Use for Foot Lever: The Foot Lever Extension will decrease the necessary range-of-motion to operate the Button Maker using the Foot Lever.

Customer Requirements:

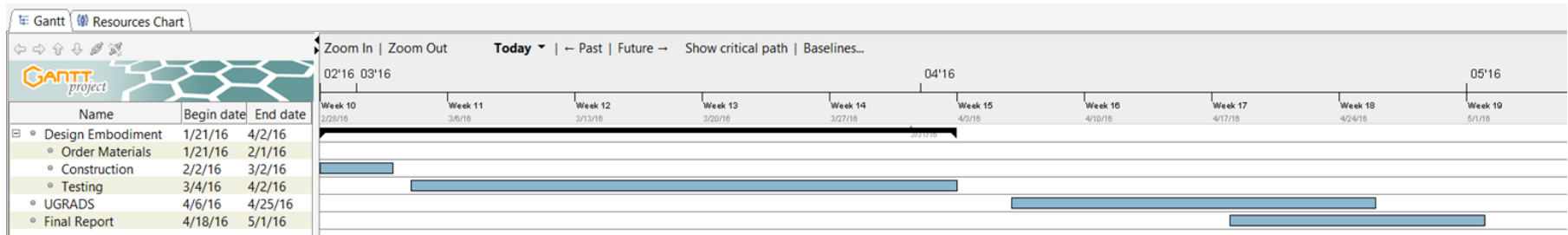<u>Alignment/Cutting:</u>

- <u>Add Alignment Mechanism</u>: By adding "bear ears" to the cut images, and by adding visual guides on the Button Maker dies, clients will be able to easily align the images to the button components.

- <u>Enable Clients to Cut Patterns</u>: By using an arbor press and custom stencil cutting dies, the cutting process will be able to be done by the clients.

Dylan Oliva

Customer Requirements:

Overall Design:

- Efficiency: The overall number of buttons made during a given time period should increase by optimizing cutting and reducing alignment difficulties.

- Changes Are Reversible: The client will be able to return to the original state of the process at any time. The cutting press may not be used, the leg extension removed, and the gear and crank for hand actuation disengaged.

- Safety: The cutting blades and gear components will be placed in a housing to prevent cuts and pinching.

- Reliability: All components will be tested to ensure that the new process decreases the number of rejected buttons.

Kristen Rieger

Schedule: Gantt Chart

- Tentative Schedule for Spring Semester, pending schedule of course deliverables

According to the Gantt Chart, the design
team is currently on schedule

Budget

Our budget for this project is $1500.00, funded by W.L Gore and Associates to improve the button making process by retrofitting the button maker and creating an improved cutting process.

CURRENT COSTS:

-Prototyping Costs:

      Cutter: $ 13.72

      Foot Extension: $ 7.65

      Fasteners, Various Scraps: Donated from NAU machine shop

      Button Making Components: Supplied by Hozhoni

TOTAL COSTS TO DATE: $21.37

REMAINING FUNDS: $1478.63

References

Tecre. (2010). Shop Tecre.com. Retrieved October 4, 2015, from   https://www.tecre.com/catalog.php?l=category&

val=Button%2BMaker%2BMachine

Thank you for your time! We welcome your questions