Title: GVI: Straw Stamp and Slicer

Date: 9/18/2025

Client: Sarah Hanson, Brett Breidor, and Ben Goss
Advisor: Professor Justin Williams
Team:

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Problem statement

Currently, quality control procedures investigating quality of bull semen for artificial insemination are time and labor intensive. The process involves cutting and pushing bull semen through a small straw using a straightened paper clip, and transferring the contents to a 96-well plate. This process takes one hour, with 8-10 plates being processed per day. The purpose of the project is to optimize these quality control procedures by designing a straw slicer that should be able to cut 12 straws at a time. It should also have removable components for cleaning. Additionally, a straw stamper is needed to push bull semen out of the straws in bulk, avoiding cross contamination.

Brief status update

On September 12th, the team met with the clients and visited the laboratory to discuss design specifications as well as watch the quality control procedure in-person. On September 15th, the first official team meeting occurred where individual portions of the PDS and expectations for design ideas were discussed. The group also conducted more preliminary research and completed the PDS. Wants and ideas for device designs have also been discussed.

Difficulties / advice requests

N/A

Current design

N/A

Materials and expenses

N/A

Major team goals for the next week

1. Sketch rough design ideas and decide on three viable designs for the straw cutter and straw stamp and fill out the design matrix.
2. Continue to update PDS based on feedback from advisor and after another client meeting

Next week's individual goals

- Catie King
    - Brainstorm design ideas for a straw stamp and some sort of holster device for the straws that do not allow them to touch the bottom of the 96-well deep plate
    - Brainstorm ideas for a blade design that would prevent cross contamination
- Lydia Miller
    - Continue research on possible risk factors
    - Develop at least 2 possible design ideas for slicer and stamper based on prototypes given
- Megan Lee
    - Brainstorm design ideas and focus on researching ways to prevent contamination
- Janice Amornthanomchoke
    - Research cost of materials and other products on the market for the product design specifications
    - Brainstorm design ideas for the devices
- Varenya Vegesna
    - Research materials that can be used for the project
    - Brainstorm design ideas for the products
- Emma Stroshane

- Research potential materials and materials that may pose issues to our tool
- Research weight limits based on the potential movement and demographics using the tool

Timeline

Week	Description	Status
9/8-9/12 Week 1	Weekly Team Meeting 1	Completed
	Client Meeting to answer questions/discuss project	
9/15-9/19 Week 2	Weekly Team Meeting 2	Completed
	PDS Draft Due 9/19	
9/22-9/26 Week 3	Weekly Team Meeting 3	
	Design Matrix due 9/26	
9/29-10/3 Week 4	Weekly Team Meeting 4	
	Preliminary Presentation 10/3	
10/6-10/10 Week 5	Weekly Team Meeting 5	
	Preliminary Deliverables due 10/8	
	Decide on final design by 10/10	
10/13-10/17 Week 6	Weekly Team Meeting 6	
	Review Preliminary Presentation Feedback	
	Submit IDR by 10/17	
10/20-10/24 Week 7	Weekly Team Meeting 7	
10/27-10/31 Week 8	Weekly Team Meeting 8	
	Show and Tell on 10/31	
11/03-11/07 Week 9	Weekly Team 9	

11/10-11/14 Week 10	Weekly Team Meeting 10	
11/17-11/21 Week 11	Weekly Team Meeting 12	
11/24-11/28 Week 12	Thanksgiving Break (11/27-11/30)	
12/01-12/05 Week 13	Final Presentation on 12/5	
12/8-12/12 Week 14	Final Deliverables due 12/10	

Previous week's goals and accomplishments

- Continue researching background information and competing designs for the project
- Meet with clients and begin coming up with questions for the client to fill out the PDS

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Catie King	9/11-9/18	- Worked on portions of the PDS - Conducted more preliminary research on standards and regulations	1.5 1.5	3	4.5
Lydia Miller	9/11-9/18	- Research competing designs and risk factors - Wrote PDS sections and created bibliography using Zotero	3	4	4
Megan Lee	9/11-9/18	- Completed assigned sections of the PDS - Conducted research on the environment that the device will be used in and the force the device will need to produce	3	3	4
Janice Amornthanomchoke	9/11-9/18	- Completed assigned parts of the PDS - Research the cost of materials and competing products - Research previous designs like stamps and knives to build the devices	2	2	3

Varenya Vegesna	9/11-9/18	- Worked on assigned portions of the PDS. - Completed more research on artificial insemination	1	1	2
Emma Stroshane	9/11-9/18	- Worked on assigned portions of the PDS - Completed research about potential materials and weight limits for the design of the tool	1 1	2	4