Title: GVI: Straw Stamp and Slicer

Date: 9/11/2025

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

The team met for the first time on Friday, September 5th and assigned roles and responsibilities. This week, the team focused on preliminary research, such as motivations behind the project, tools and appliances used in the procedure, and competing designs and patents on the market. We have also contacted our client and scheduled an in-person meeting as well as a group excursion to see the procedure on site.

Difficulties / advice requests

N/A

Current design

N/A

Materials and expenses

N/A

Major team goals for the next week

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

Next week's individual goals

- Catie King
    - Conduct more research on quality control protocol for artificial insemination
    - Research lever mechanisms and brainstorm the straw cutting device
- Lydia Miller
    - Begin brainstorming of design ideas
    - Continue research of competing ideas and artificial insemination devices
- Megan Lee
    - Research current competing devices that are being used to cut and stamp the straws
    - Start to brainstorm ideas for our device
- Janice Amornthanomchoke
    - Research background information on the project's significance, project's functions, materials, project's development, similar products
    - Attend the first BSAC meeting this friday
- Varenya Vegesna
    - Conduct basic background research and research other products in the market.
- Emma Stroshane
    - Research current patents relating to our projects and understand what features set them apart

- Research the important behind artificial insemination in cattle

Timeline

Week	Description	Status
9/8-9/12 Week 1	Weekly Team Meeting 1	
	Client Meeting to answer questions/discuss project	
9/15-9/19 Week 2	Weekly Team Meeting 2	
	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

- N/A

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Catie King	9/5-9/11	- Helped prepare the progress report and draft the problem statement - Researched the motivation for the project and how bull semen is stored	0.5 1	1.5	1.5
Lydia Miller	09/08/2025	Research competing designs and well plates	1	1	1
Megan Lee	9/10/2025	Researched quality parameters for artificial insemination and for current insemination straws being used today	1	1	1
Janice Amornthanomchoke	9/10/2025	Research the process of using insemination straws and the proper conditions to use artificial insemination	1	1	1
Varenya Vegesna	09/09/2025	Research competing designs and artificial insemination straws.	1	1	1
Emma Stroshane	9/08/2025	Researched a current patent and recorded features and why they did the design they did	2	2	2