

Ergonomic re-design of a surgical stapling device

Client: Dr. Amy Liepert, liepert@surgery.wisc.edu

Advisor: Beth Meyerand, memeyerand@wisc.edu

Date: 16 Feb 2017 - 23 Feb 2017

Team:

- Andrew Fugate - afugate@wisc.edu, Team Leader
- Albert Anderson - afanderson2@wisc.edu, Communicator
- Therese Besser - tmbesser@wisc.edu, BSAC
- Ellen Restyanszki, restyanszki@wisc.edu, BWIG & BPAG

Problem Statement:

Surgical staplers have undergone many design modifications including the recent addition of powered devices. Stapling devices are used both for intestinal resections and anastomoses as well as for vascular control. The users of these devices have also changed overtime with both the increase in female surgeons as well as an aging surgeon population.

Opportunities for improvements in device design for the increasingly diversified surgeon users are multiple. This project provides the opportunity for lab based and field study investigation of the ergonomic implications for the device users as well as potential for novel design modifications and/or solutions.

Restatement of Team Goals: n/a

Summary of Team Role Accomplishments

Andrew - Worked on preliminary deliverables.

Albert - Worked on preliminary progress report

Therese - Preliminary progress report, timeline for the rest of the semester

Ellen - Worked on modeling mock up of pencil design in clay.

Summary of Design Accomplishments

- Finalized preliminary report
- Began developing prototypes for testing

Activities:

Person	Task	Weekly Total	Semester Total
Andrew	<ul style="list-style-type: none"> • Preliminary design report 	4	9
Albert	<ul style="list-style-type: none"> • Preliminary Design Report 	3	8
Therese	<ul style="list-style-type: none"> • Preliminary design paper • BSAC meeting 	5	10
Ellen	<ul style="list-style-type: none"> • Brainstorm and modeling • Preliminary Design paper 	4	10.5

Statement of Team Goals:

Individual Goals:

Andrew - Start putting our design on SolidWorks after meeting with Dr. Liepert so we have her input.

Albert - Meet with Dr. Liepert on Friday, decide on final design, begin deciding how to model final design

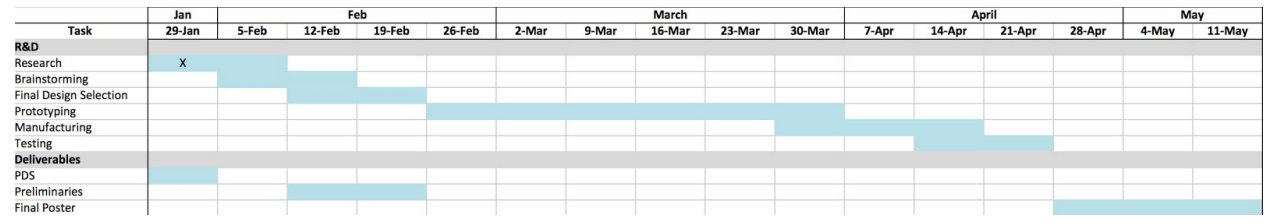
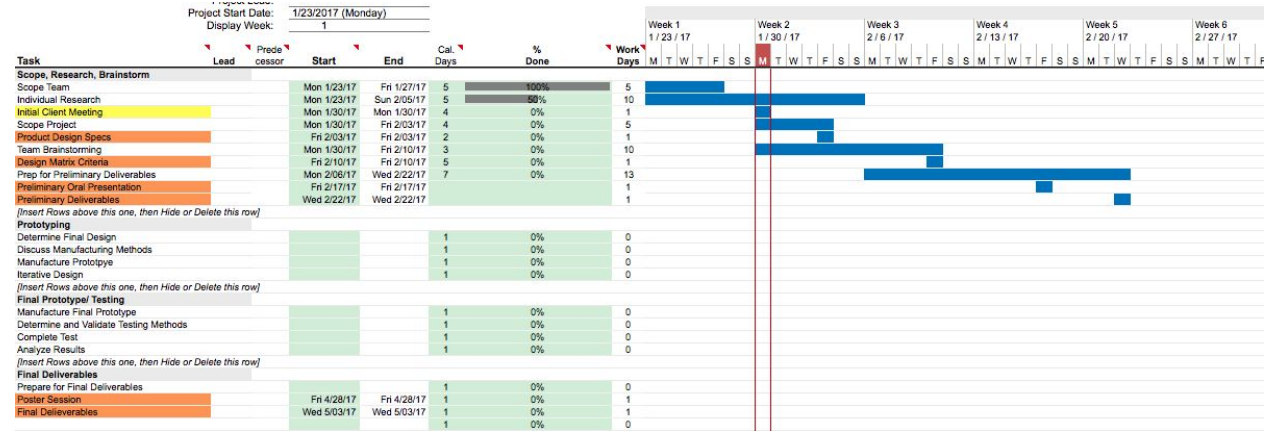
Therese - Fabricate the first iteration of prototypes, define the elements of each prototype that was successful and unsuccessful at meeting our design criteria.

Ellen - Use our client meeting on Friday to better understand next steps for design and begin ideas for a computer generated model.

Difficulties:

- We foresee issues with the design of the mechanism inside the stapler.
- We need to find out if it is in our scope to contact and potentially work with Ethicon. To be successful for our client we are dependant of either selling our idea or working with this company.

Project Schedule/Timeline:



Expenses: None