

BME 301 Progress Report

Automated Bioanalytical Chemistry Sample Tube Uncapping and Capping Device

* **Names:** Jake Jaeger (jjaeager4@wisc.edu)

Alec Onesti (onesti@wisc.edu)

Sam Perez-Tamayo (spereztamayo@wisc.edu)

Katie Werth (kwerth@wisc.edu)

* **Client:** Dr. Robert Radwin (ISyE, BME)

* **Advisor:** Dr. Chris Brace (Dept. of Radiology)

* **Report Period:** February 11th-17th

* **Project Overview:** Employees in a commercial laboratory cap and uncap more than 500-700 test tubes per day for a rapid, high throughput analyzer. This is causing undesired stress in the lab technician's fingers and hands. A design of a completely automated sample bottle cap cassette is desired that will eliminate much of the manual work by the technician during use of the analyzer.

* **Last Week's Goals:** We have spoken with our client and learned that this project is open-ended, meaning we can take it in any direction we want. We have our design matrix criteria, and now our goal is to brainstorm design ideas. We hope to use what we learned from our work last semester to both build upon our last semester's uncapper design, and also hope to pursue a design that caps sample tubes.

* **Summary of Design Accomplishments:** Developed a design matrix and created a preliminary presentation.

* **Summary of Team Role Accomplishments:**

Katie (Leader) – Provided Covance with design criteria, ensured preliminary presentation was completed before deadline

Alec (Communicator/BSAC) – Attended BSAC meeting. Organized team meeting and phone call with client.

Jake (BWIG) – Updated team website.

Sam (BPAG) – No purchases made thus far

*** Activities:**

Date	Person	Task (hours)	Previous Total	Weekly Total	Semester Total
1/26	Katie (Leader)	<i>Progress Report (0.75)</i>	0	0.75	0.75
2/1		<i>PDS (1)</i>	0.75	1	1.75
2/9		<i>Update PDS, Design Matrix Criteria (0.5)</i> <i>Research Biology/Physiology (1.5)</i> <i>Brainstorm/Sketch Design Idea (1.5)</i>	1.75	3.5	5.25
2/15		<i>Preliminary Presentation (2)</i>	5.25	2	7.25
1/26	Sam (BPAG)	<i>Brainstorm capping mechanism (0.75)</i>	0	0.75	0.75
2/6		<i>Research potential motor upgrades (0.75)</i> <i>Sketch design idea (1.0)</i>	0.75	1.75	2.5
2/15		<i>Preliminary Presentation (2)</i>	2.5	2	4.5
1/26	Alec (Comm./ BSAC)	<i>Initial Contact with Advisor and Client (0.5)</i>	0	0.5	0.5
2/1		<i>PDS formation (1)</i>	1	1	1.5
2/8		<i>PDS update(0.5)</i> <i>Design Matrix Criteria(0.5)</i> <i>Brainstorm design idea(1)</i>	2	2	3.5
2/15		<i>Preliminary Presentation (2)</i>	2	2	7.5
1/26	Jake (BWIG)	<i>Fix up existing device (1)</i>	0	1	1
2/1		<i>PDS (1)</i>	1	1	2
2/6		<i>Brainstorm uncapping mechanism (1)</i>	2	1	3
2/8		<i>Design slide-through uncapping mechanism (2.5)</i>	3	3.5	5.5

2/15		Preliminary Presentation (2)	5.5	2	7.5
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* **Team Goals:** Further develop design ideas and design matrix; implement these items into a preliminary presentation. Present preliminary design ideas to our client and begin prototyping by ordering materials next week.

* **Individual Goals:**

Katie – Contribute to preliminary presentation

Sam – Research higher power motors, stoppers to purchase

Alec – Update CAD models after client meeting. Help in researching materials needed for prototyping.

Jake – Update the team website, further develop Slide-Through design idea, and contribute to preliminary presentation

* **Difficulties:** The weighting of the criteria in the design matrix may need to be altered following the Covance meeting, which will occur *after* the preliminary presentation.

* **Expenses:** No news

Item	Cost	Company/store
Total		