

BME 301 Progress Report

Automated Bioanalytical Chemistry Sample Tube Uncapping and Capping Device

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

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

* **Report Period:** February 18th-24th

* **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:** 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.

* **Summary of Design Accomplishments:** Determined "best" design idea, began prototyping design, developed testing methods, and constructed Preliminary Report.

* **Summary of Team Role Accomplishments:**

Katie (Leader) – Ensured deliverables were completed and submitted on time

Alec (Communicator/BSAC) –

Jake (BWIG) – Updated website with preliminary updates and progress report

Sam (BPAG) –

*** 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
2/18		<i>Prototype Planning (2)</i> <i>Team Notebook (2)</i> <i>Preliminary Report (1.5)</i>	7.25	5.5	12.75
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		<i>Preliminary Presentation (2)</i>	5.5	2	7.5
2/18		<i>Prototype Planning (2) Preliminary Report (1.5)</i>	7.5	3.5	11
2/28		<i>Research of flexible motor shafts (0.5)</i>	11	0.5	11.5

* **Team Goals:** Plan and assemble Slide-Through prototype, conduct proof-of-concept testing, develop preliminary report, finalize team notebook, and present current status to Dr. Brace.

* **Individual Goals:**

Katie – Assist in prototype planning and assembly, develop preliminary report, ensure team notebook is thoroughly completed and deliverables are submitted on time

Sam –

Alec –

Jake – Update the team website, create prototype for Slide-Through design idea

* Difficulties:

* Expenses:

Material	Date Ordered	Company	Cost	Funding
12V DC Motor	Fall 2016	ServoCity	N/A	N/A
Plastic Gears	2/18	Amazon	\$6.79	Team
Rubber Stoppers	2/18	Amazon	\$8.96	Team
5mm Rods	2/18	CoE Scrap Room	\$0.00	N/A
Mounting Plate	2/18	CoE Scrap Room	\$0.00	N/A
Total				