

# 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 4th-10th

\* **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:** Specify design goals for semester, begin drafting PDS, obtain contact with Radwin and/or Covance.

\* **Summary of Design Accomplishments:** We have developed a PDS that includes quantifiable parameters, brainstormed a variety of design matrix criteria, and sketched several design ideas that will be further analyzed next week.

\* **Summary of Team Role Accomplishments:**

**Katie (Leader)** – Submitted progress report, ensured deadlines were met

**Alec (Communicator/BSAC)** – Organized meeting with Professor Radwin

**Jake (BWIG)** – Updated website with new progress report

**Sam (BPAG)** – No purchases made thus far

**\* Activities:**

Date	Person	Task (hours)	Previous Total	Weekly Total	Semester Total
1/26	<b>Katie</b> (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		Update PDS, Design Matrix Criteria (0.5) Research Biology/Physiology (1.5) Brainstorm/Sketch Design Idea (1.5)	1.75	3.5	5.25
1/26	<b>Sam</b> (BPAG)	<i>Brainstorm capping mechanism (0.75)</i>	0	0.75	0.75
2/6		Research potential motor upgrades (0.75) Sketch design idea (1.0)	0.75	1.75	2.5
1/26	<b>Alec</b> (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		PDS update(0.5) Design Matrix Criteria(0.5) Brainstorm design idea(1)	2	2	3.5
1/26	<b>Jake</b> (BWIG)	<i>Fix up existing device (1)</i>	0	1	1
2/1		<i>PDS (1)</i>	1	1	2
2/6		Brainstorm uncapping mechanism (1)	2	1	3
2/8		Design slide-through uncapping mechanism (2.5)	3	3.5	5.5

**\* Team 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.

**\* Individual Goals:**

**Katie** – Brainstorm and sketch design idea

**Sam** – Brainstorm design ideas

**Alec** – Brainstorm and model a design that caps a twist-on sample tube

**Jake** – Brainstorm and model new design ideas



\* **Difficulties:** The client's lack of guidance regarding what they would like to see and what they could use makes beginning this project a challenge. We will proceed with the PDS that we have developed and will brainstorm design ideas, and if the client lets us know of any specifications regarding this project afterwards, we will adjust our design ideas accordingly.

\* **Expenses:** No news

<b>Item</b>	<b>Cost</b>	<b>Company/store</b>
<b>Total</b>		