

EE/CprE/SE 491 WEEKLY REPORT 4

Feb 20, 2023 – Feb 26, 2023

Group number: sdddec23-19

Project title: Bluetooth-Enabled Ingestible Capsule to Monitor Gut Activity

Client &/Advisor: Santosh Pandey

Team Members/Role: Chase Thompson, Cutler Thayer, Tucker Thomas, Robert Zukowski

○ Weekly Summary

This week we continued our research on capsule endoscopy. This technology could be especially useful for Diabetes and Malaria patients as they sometimes require specific dosages that could change on the fly. Anne Trafton's article for MIT news was useful for obtaining information. The pill they described contains multiple arms that are designed to both hold/release drugs and keep the pill inside the stomach. Also, the bluetooth signal from the pill reaches roughly an arms length away. This is for the safety of the pill's user as to avoid malicious or accidental connections.

○ Past week accomplishments

- **Chase Thompson:** Did more research into rapid reading and the components used in already existing pills on the market. Compiled a list of topics and questions to discuss when meeting with the professor.
- **Robert Zukowski:** After reading through the research papers and beginning to do a very preliminary look through what parts exist for the project description, I realized how little our group has to go on in terms of actual specifications. It seems currently that we are being roped into doing grad-school research for free as opposed to actually completing a defined project.
- **Cutler Thayer:** After doing a lot of reading on this subject there I believe there is not much more that we can do until we meet with our mentor again to get clarification on more details. Our priority as a group should be to meet with our mentor to get more clarification, and make sure that everyone is on the same page. In addition get enough information to start working on something more substantial for the project.
- **Tucker Thomas:** Created table for professionalism assignment, summarized IEEE code of ethics as it relates to areas of engineering responsibility. Discovered that our advisor's schedule does not align much with ours when it comes to meeting times. Continued research into the ethics of the endoscopy pill.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Chase Thompson	Researched parts and components that are used in existing pills. Compiled a list of questions and topics to discuss with the professor.	2	13
Robert Zukowski	Finished reading research papers mentioned in previous weeks. Began looking into existing products.	5	8
Cutler Thayer	Read more papers in regards to the project, but need to discuss more with the mentor to make any further headway.	2	9
Tucker Thomas	Brainstormed questions for a survey, asked friends and family about their opinions of the project as a whole. The purpose of these actions is to build an understanding of ethics regarding the endoscopy pill.	2	12

○ **Plans for the upcoming week**

- Chase Thompson: Discuss what I found about Rapid Reading technology with the advisor and come up with ways to find out more.
- Robert Zukowski: Discuss with the professor what constraints exist for what parts we need to buy/create.
- Cutler Thayer: Finish reading the mentioned papers, and look into both rapid reading algorithms and sensors and look into ways to integrate both together.
- Tucker Thomas: Determine a consistent meeting time with our advisor. Create rough draft of survey.