

EE/CprE/SE 491 WEEKLY REPORT 7

Mar 21, 2023 – April 2, 2023

Group number: sddec23-19

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 met with our advisor to discuss progress and future plans.

○ **Past week accomplishments**

- **Chase Thompson:** Did some further research into image banks and began reading through research papers about the techniques typically implemented when working with image processing. Specifically I read through this article and learned a little bit more about how the algorithms work and thought about how we would apply this to our project.
- **Robert Zukowski:** We met with the professor to discuss progress and what to continue doing. Apparently the capsules used by many large companies do not have the bluetooth module internally which saves a significant amount of space, but there is no explanation for how the data can possibly be sent without the microcontroller responsible for sending it. Going to company websites was completely useless and a waste of time. I will need to email company engineers and potentially order some of these pills to reverse engineer them.
- **Cutler Thayer:** My weekend has been very busy where it was difficult to work on the project. I did meet with the professor and discussed both the hardware and software portions further. In addition I did look more into the data sets, and looked at code to see how the data was categorized.
- **Tucker Thomas:** Facilitated meeting with the advisor to discuss more of what is needed from the project. Researched a data set of gastrointestinal photos and read scholarly articles.

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Chase Thompson	Researched image processing algorithms and how we would apply these algorithms to our project.	2	18
Robert Zukowski	Went to the meeting with our advisor. Looked at company websites to see if any information was available for how data could be collected/sent from the capsule without a bt microcontroller.	4	18
Cutler Thayer	Met with professor and looked more into data sets.	2	16
Tucker Thomas	Communicated with the advisor in order to schedule a meeting.	3	15

○ **Plans for the upcoming week**

- All Team Members: Read the attached article about [already existing companies that are prevalent in this field](#).
- Chase Thompson: Do further research on image processing algorithms.
- Robert Zukowski: Contact companies about previously mentioned questions. Email grad students to set up meetings and discuss circuits to be made.
- Cutler Thayer: Try to replicate a simple program to categorize various gastrointestinal issues from photos.
- Tucker Thomas: Reach out to relevant people and ask for their code in order to gain a baseplate of what is needed on the software side of the project.