Subject: Automated Microbial Analysis Update

Date Sent: 05/07/2020

Hello Scott,

Despite the shutdown of society at large, we have made some good progress towards the overall design of the project. Although physical access to the system has only recently been regained, the time spent since then has not been idly wasted. We have partitioned the workload into Mechanical, Electrical and Computer Science sub groups to help with organization.

**Mechanical**

The mechanical design is nearing completion and we have added some better joint ends to the lower/upper arms for smoother movement. Currently we are having issues getting the end effector to stay parallel to the surface of the workspace, but expect this to be resolved soon. We will begin working on cleaning up the work space area of wires and other clutter and restraining them to the upper walls of the frame. In addition, we also hope to mount and secure the Raspberry Pi and Central Processor PCB to the inner frame area.

Some improvements that could be made in the next week include perfecting the lower arm lengths so that the end effector is parallel to the floor, adding the suction cup and tube system, and creating secure mounts/coverings for the central processing PCB.

**Electrical**

The electrical design has not really changed since the last update. The time since has been spent mainly on documentation of the electrical sub-system in one form or another. The GitHub has been updated a great deal, as has the project website. Furthermore, the video covering the details of the entire project has just been completed. This should allow someone to build off of our progress much easier should the opportunity present itself.

**Computer Science**

The majority of our work on the computer science subsystem over the last few weeks have been centered around documentation. We have prepared presentation materials for the Virtual Expo. This includes a video that describes the entire project and a demonstration of the current functionality of the bot. Moving forward we hope to complete the project over the next few weeks. This will include getting all the controls commands working properly and refining the computer vision to be more accurate.

In the coming weeks we will continue to integrate our designs into the system, as well as update our repositories. All of the updates we have provided in this email, as well as any future updates can also be viewed on our GoogleSite. As always, we will all be available by email to answer any questions you might have.

Thank you for your time,

Zach Bendt

Jorian Bruslind

Macklin Hall