To: Dr. Satici, Brian Higgins

From: Robotic Vision Team: Daniel Pullicar, Roscoe Ambrose, Mason Cannon, Haston LaGrone

Subject: Project Update Memo 9/18 – 10/2

Date: 10/2/2022

Good day professors, this memo is to serve as an update on our first two weeks working as a team on the Robotic Vision Project.

# Work Completed

The focus of our team over the last two weeks has been organization, role designation, and initial introduction to our sponsor and mentor. We organized our first group meeting on 9/22, in which we assigned initial roles to each member of the team as well as laid out a team charter. From this meeting we assigned the current roles to each member.

* Communicator: Roscoe Ambrose
* Team Coordinator: Daniel Pullicar
* Notetaker/ Infokeeper: Mason Cannon
* Flex: Haston LaGrone

As we are still in the initial stages, the roles are intended to be flexible as we learn more about the needs of the project.

Our second team meeting took place on 9/28. We met with Dr. Satici for initial introductions as well as an overview of the goals of the project. There are four primary issues with the robot we will be aiming to fix.

* The camera controlling the robot is not able to see the entire air-hockey table
* The robot is slow to process the visual information making it sluggish against human opponents
* The camera is in a fixed position, so observing the entire table will require more cameras
* The code controlling the robot will need to be written from the ground up and be capable of fusing the information from multiple cameras.

There are some constraints in solving these issues, mostly revolving around the implementation of the controlling code and cameras. The script will need to be written in c++ or python in order to be compatible with the existing design. Ideally the implementation will be modular and allow for the addition or subtraction of extra cameras at the user’s discretion. In regards to the cameras, we have the option to test other methods of observation (lidar, thermal, etc.) but straying away from optical sensors may have varied results.

# Work Pending

The focus of our group in the coming weeks will be centered around our meeting with Dr. Satici’s graduate student Wankun Sirichotiyakul. He will be giving us further insight into the behavior of the robot and from this information we plan to delegate specific tasks to each team member. At the moment we are working on a handful of tasks cooperatively. We aim to complete the following tasks using the information from the meeting.

* Decide on the method in which the robot will identify the puck and respond to it, whether that be machine learning or the computer vision system.
* Decide if other methods of observation aside from optical sensors will be explored.
* Decide upon a language the code will be written in and who will oversee this task.
* Layout a team roadmap and delegate tasks upon remaining members.

# Conclusion:

Our first two weeks of the project have been focused on familiarizing ourselves with the other group members, our sponsor, and the robot we will be working on. The objective of this project is straightforward but also challenging and will require a firm grasp on all of its aspects before we can begin implementing any ideas. After the meetings this week and the further familiarization of ourselves with the robot, we believe that we will be in a place to begin specializing each member and developing a plan to success.

# Appendix A: [Label]

[Include technical content here, as needed. Be sure to refer to this content in the text to alert the reader that there is an appendix to review.]