CS1980 – Hardware / Software Interface

Deliverable 2 – Midterm Update

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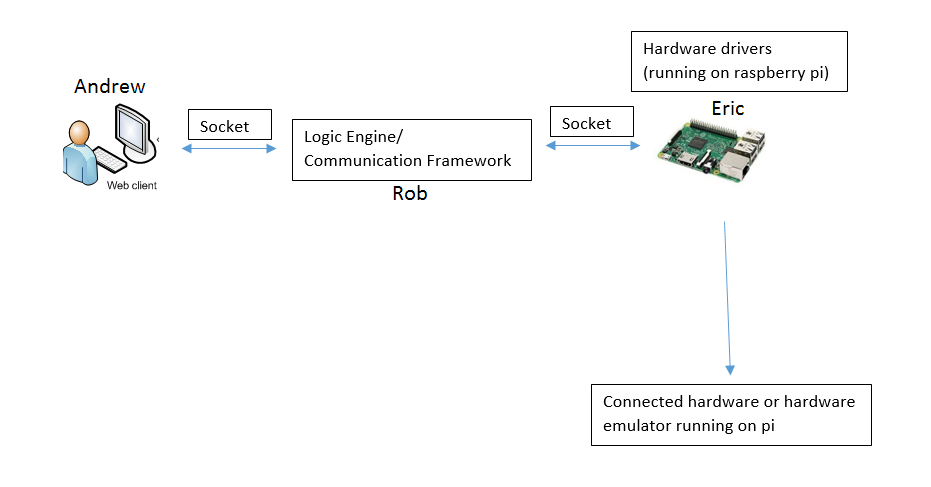
POC: Don Bullock

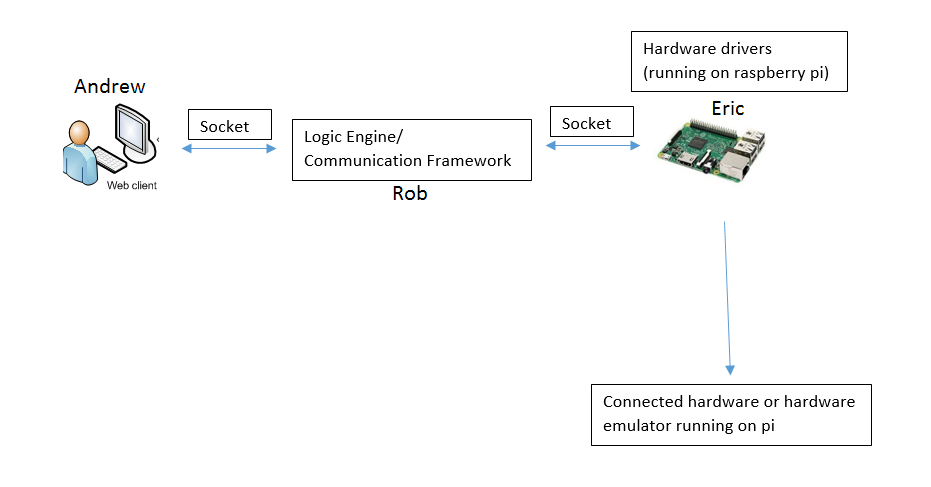
Our team is currently in the early development and design stages of this project. No user stories have been fully implemented but much of the division of labor and general design of the project has been established. Much of our time so far has been spent coming to agreements on work division, user story prioritization, and design aspects. This involved creating documents, including a System Requirements Specification (SRS), System Design Document (SDD), Statement of Work (SOW), and Working Agreement. Creating the SDD, in particular, required us to map out a lot of design aspects (languages, libraries, scope and modules of each software component, etc.) ahead of time.

Some new user stories needed to be added based on new information from our POC. For example, he decided that sockets should be used for any and all communication between the software components. He also specified a few libraries that he wanted us to use. While he typically has avoided specifying implementation details in the past, he felt these were necessary to keep the project on track as we were continually learning about the hardware and how to communicate with it. A few user stories were also removed based on our progress so far. The POC is no longer requiring us to write code to invert the raspberry pi’s wifi adapter and no longer requires the logic engine to accept input of absolute angle locations. These were removed due to time constraints and the fact that they were considered very optional from the start.

Early changes made to user stories were due to group size. Coming into the project, the POC stated that this project was intended for a project group of five to eight people. Because there are only three of us, certain roles were eliminated and others combined to evenly distribute the work load. The roles shown in <Figure A. > are the result.

*<Figure A.>*



  
Figure A: System Design Diagram

Communication and work division have been some of our team’s strong points. There have been no issues having weekly meetings, setting goals, getting feedback from the POC, or splitting up any task. However, due to our inexperience with the rigorous documentation process, our overall pace has been slow so far. Our team feels that we could accomplish more and meet higher expectations during the actual coding/development process, so a quicker pace should hopefully be set for the future. Also, due to our sparse code base, it’s still difficult to determine how long it will take us to complete user stories and how on-track we are to complete the project. This can be disconcerting, however we hope that by prioritizing user stories most important to the POC, we can get enough functionality implemented that we can make better estimates for future progress soon. We’ve prioritized user stories regarding the core features and features necessary to ensure safe operation of the hardware.

The slow pace so far may be attributable to the steep learning curve for this project. None of the team members have prior experience with rigorous technical documentation. However, we have more technical aptitude for the coding portion of the project than we previously thought. Some of us have familiarity with hardware communication using a raspberry pi and learning how to implement sockets in Python has not been as difficult as we anticipated. We also constructed a Working Agreement that specifies our division of labor for the future, version control procedures, QA procedures, and other things we’ve agreed on as a team to streamline future development further. Hopefully this will allow us to increase our pace and have more high priority user stories completed in the near future.