Self Assessment
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Over the course of both semesters, our team was able to create something from the ground up that solved our problem and fit our design. I was mainly in charge of the firmware for the project. I worked closely with both Grant and Isaac to establish communication between the phone and raspberry pi's. I learned and implemented MQTT, a publish-subscribe communication method, using an additional raspberry pi as a broker and a router to handle all the wireless. This allowed for the phone to publish messages to a given topic on the broker, and the raspberry pi on the tap to subscribe to those topics to receive the messages.

I also worked with designing and implementing the Finite State Machine. I used a python library, Transitions, to help aid in the implementation. The FSM was straightforward for our use case. When the raspberry pi received a message, it would change states accordingly. All the pour sizes were mapped to times that the pour spout would be open. I put all the hardware interfaces in their own classes so I could easily create and call their high-level functions from my main loop. Obviously, there was A LOT of trial and error and many issues were faced before coming to a working solution. We had some issues with the hardware working properly, and since none of us were COMPE or EE majors, we were by no means experts with hardware. We also ran into issues with some design aspects, but we were able to work through those by iterating through our 3D printed pieces.

In the end we created a fully automatic kegerator, which is exactly what we had set out to do, so I would consider us successful. We were able to have a our kegerator dispense beer via a phone app. Our team worked very well together. We broke up the responsibilities, so everyone had their part. I worked mainly with the firmware and communication between the app and the phone. Isaac dealt with all the physical prototyping and hardware. Grant was responsible for a lot of the app. Together, our parts worked together to create an amazing end result.

I learned a lot about group work over the course of the two semesters. Our group from the start had our "assigned roles" and this helped us keep our work on track. Our responsibilities were laid out, and each person was responsible for their own section. Despite having our own responsibilities, we often would help each other as needed. Most of our work for the project was done together or while we were all together, so it truly felt like a team project. There were times where there would be disagreement among team members, but after talking through the issues and possible solutions as a team, we were always able to find a solution that made everyone happy. It is hard to compare efforts with my teammates, as everyone was doing very different things. I worked very hard on the communication and firmware/finite state machine, but I know both Grant and Isaac worked very hard on their tasks as well. For a project like this, each of our team members had their time to shine, and their longer weeks.

I am very proud of our team and the final project we created.