ECE 445 Team 20 Contract Fulfillment

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Project Goals: Our goal, as described in our original contract and proposal, was to build a beer pong mat that could indicate to a user where to place their cups, indicate when a cup is too full or too empty, indicate when a cup has been hit, and display the score of a game, the score of a series, and whose turn it is to throw to the users. Our project was to be portable, accurate, and intuitive in order to successfully solve the problem we initially laid out, and we feel that our final product has met all of these goals.

Expectations: Our expectations as laid out in the team contract were met, and the ground rules our team set were in fact followed. Each member was prompt with their communication, stayed open to the other members' ideas, and completed the tasks they were assigned. In addition, each member treated the project as a top priority, dedicating many hours outside of class to completing it.

Roles: At the beginning of the course, we stated that the plan was for Spencer, being an electrical engineer, to play a more prominent role in the circuit and PCB design while Keith and Nishita, being computer engineers, would contribute more heavily to the software side of the project, coding the microcontroller to ensure proper function. These roles did not evolve very much over the course of the project. Spencer did the majority of the PCB and circuit design, while Keith and Nishita wrote nearly all the necessary code, with Spencer assisting occasionally. Other tasks, such as the writing assignments, component research and purchasing, and testing/verification, were done as a group, with at least two members present depending on who was available.

Agenda: Our project relied heavily on deciding what needed to be done whether it was software or hardware. Each decision we made was from the top down. We asked ourselves what we wanted to accomplish and what it would take to accomplish the goals. A majority of our decisions were related to cost and size. Software and hardware were harder decisions to make, but we delegated decision making for more low level tasks to each other to take care of. When an issue came up, one thing we did was split up to try and come up with a solution to the problem. We did this in order to explore all possible solutions. If the issue was hardware related we would discuss with Spencer about potential fixes, and Nishita and Keith for software. If the issue was due to logistics or scheduling, we would discuss as a group and delegate the problem to one person to solve. Overall, our plan to solve issues was approached very modular which helped us be able to minimize interruptions between separate parts of our project.

Team Issues: Throughout our project, we faced 2 major issues: one of them was we failed to anticipate how small our microcontroller was or how we needed more materials. Considering that it was difficult to get most parts on time, we had to hustle throughout the project and change up our original schedule. Secondly, we ran into issues with our microcontroller being an Atmel and not being able to sync with the Arduino IDE. Since we all had Macs, we were unable to download the software required to use the microcontroller. Eventually, we ended up loaning a Windows laptop from UIUC and figured it out. The problems presented were dealt with in a rather collaborative manner, we all pitched in our ideas and identified the best action plan. This allowed us to be on the same page and change up our action items. The process set out in the team contract was followed where we all worked together to fix and solve issues.