**Team C**

3/17/2023

**ECTE250**

**Deliverable 3**

Submitted by Muhammed Shurrif

**Simulation results with respect to the hardware design and system functionalities.**

The main objective of our group was to create a wireless e-scooter charger. In total, there are two inputs, two outputs, and five states. Whether the user wishes to ride or not is determined by the first input, and whether the battery is low is determined by the second input. The outputs include an alarm and an LCD display. We made the Multisim file with Mr. Kiyan's assistance.

There were three flip-flops and several AND-OR gates used for the design. To measure the outputs, we utilized probes. Also, we used a function generator and set a specific frequency so that after a certain time frame, it would automatically switch between states. An oscilloscope was used to obtain the timing diagram. When we reboot the system, it remains in state 000 and moves based on our inputs. The individual probes glow if there is an output at a specific state.

We also used Tinker cad to create a system. For the first input, a sliding switch, and for the second input, a potentiometer was used. As output devices, an LCD screen and a buzzer were employed. The system was coded in accordance with our state diagram, and it runs successfully. We have two states with outputs, and for those two respective states, either the alarm rings or the LCD is lit up.

**Mentor’s feedback on Deliverable 2**

Beyond looking into the feedback, we didn't receive many negative comments, but we still took them seriously. The first one was because the executive summary didn't summarize the results and used personal language, which shouldn't have been done and will be investigated in future reports and more. We as a team took all the details into consideration to prepare us well for Deliverable 3. Moreover, in text citations was an issue but we didn’t use many references in the first place. Also, some of the figures didn’t have much description but we think we explained the figures in the paragraphs.

As previously mentioned, almost everything went according to plan for this deliverable apart from a small mistake which we had in pricing. This was quickly resolved by the lab instructor as he mentioned that we will not need to use physical logic gates and we will implement most of the design with our code. We have finalized our circuit in both Multisim and tinker cad before the deadline. We compared our feedback and report with other teams, we saw that they had a very similar report like us in terms of structure and flow. While our areas of strengths were the design and simulation part, the other team had their budget and introduction well developed in comparison to us. Looking at the positives the report's flow and structure, which have a clear framework and a strong conclusion, as positives also, the report was clear, concise theme and a smooth progression of ideas.

We are satisfied with the efforts which we have put into the report. And while our report was fine, it could have been flawless and received a higher grade if the problems had been addressed.