IM3080 Design and Innovation Project (AY2022/23 Semester 1)
Individual Report

Name: Tan Zi Qi

Group No: Group 4

Project Title: Tetris (Interactive)

Contributions to the Project (1 page)

- Brainstorming and Ideation of design of outer box
- Procurement of materials for design
- Ensured measurements of the wire strips fit within the outer box
- Wire cutting for LED strips
- Soldering of wires for LED strips
- Insulation of wires for LED strips (hot glue, heat shrink, and masking tape)
- Fixed hardware issues of LED strips where needed
- Soldering and connection of wires to buttons
- Painted and designed the outer box
- Designed the hand held controller
- Quality check and testing of hand held controller
- Cut partitions for the LED strips to decrease light leakage
- Mounted the LED strips to the out box
- Wire management for the controller box
- Cut 3D paper Tetris shapes for design
- Designed and created poster for the project

Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to at least two of the points below:

(a) Engineering knowledge
(b) Problem Analysis
(c) Investigation
(d) Design/development of Solutions
(e) Modern Tool Usage
(f) The Engineer and Society
(g) Environment and Sustainability
(h) Ethics
(i) Individual and Team Work
(j) Communication
(k) Project Management and Finance
(l) Lifelong Learning

Point 1: Individual and Team Work

Team work is very important in every project, and I felt that our group did a good job in terms of teamwork. Whenever another team or group member is having trouble, the others will always try their best to help out.

Even though we were separated into hardware, software, and design teams, we would always help each other out when the others are having a lack of manpower. This helped our team to overcome challenges easily. For example, when the hardware team had trouble soldering many LED strips at once, the design team would help out to make the process quicker.

We would also make sure that our own individual part is done well, so as to not worry the others because everyone else had their own problems that they had to fix as well.

Point 2: Engineering Knowledge

Before working on this project, I had no experience with Arduino and had no hardware knowledge. In the first few weeks, I had to read up on Arduino basics and try out coding on the Arduino. Even though I was not part of the software team, I found it to be very interesting. If not for this project, I do not think I would have ever touched an Arduino.

Since I had no hardware knowledge as well, I had to pick up these skills from our more experienced team members who had done hardware project before. Through this, I have picked up wiring and soldering knowledge. We all learned from each other, and my team members also learned about how to effectively insulate solder using hot glue from me as well.

Even though I might have made some mistakes in the beginning, which caused some hardware errors where the LED strips are unable to light up, after a few tries I managed to properly solder and insulate the wires and the problems were resolved. Sometimes hardware requires trial and error to figure out the problem, and we all managed to overcome the problems eventually through our newly acquired engineering knowledge.