IM3080 Design and Innovation Project (AY2021/22 Semester 1)
Individual Report

Name: __LOH YI HONG_____

Group No: _____3_____

Project Title: _____Cloud Tubes_____

Contributions to the Project (1 page)

My primary contribution to the project as a member of the hardware team is hardware design.

In order to restore the project, this entails *cleaning the surface*. In order to give the frame mobility and support, I *added more screws, tightened the frame*, and *added a total of 6 wheels*. To give the cover a new look, a *fresh layer of paint was also painted* on it. To keep the tube from wobbling, **I adhere cut-out pieces of foam board underneath the cover.** The planning of the structure design, *material purchases*, installation, and refurbishment all took place during the restoration phase, which lasted around three weeks.

The hardware team *discussed and planned the wiring and power supply* required to run the Arduino and illuminate the LED tubes when the restoration phase was complete. My responsibility was to *take care of the wiring and connection of the circuit*, which involves *grouping and organizing the wires, soldering each wire to each connector or extending the existing wires, sticking the LED and sensors to the tube and utilizing junctions to arrange the entire circuit.*

Due to the enormous quantity of wires required, the circuit connecting stage took up the majority of the time. At least six to seven weeks were spent in the phase.

In addition, I considered different options for decoration and decided to use wool for the clouds on top of the tube and adhere reflective paper to the structure's body for a futuristic appearance because it was inspired by Garden by the Bay's Cloud Forest.

The remainder of the time was spent *resolving whatever connection problem* that surfaced.

Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to <u>at least two</u> 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: <u>Lifelong Learning & Engineering Knowledge</u> State the area: <u>Lack of understanding of electrical components and wiring</u>

Due to my complete lack of experience physically dealing with wirings and the electrical component of the project, I had a significant lot of difficulty and uncertainty when developing the hardware design. For example, I had no idea what to do when designing the wiring and power supply; I had no idea where to begin or what to do with the huge piles of existing wires. Fortunately, I received advice and guidance on how to design power supplies, organize wires, and solder wires from my peers who are also on the hardware team. Many connection problems came up over the project period, and I must admit that I'm very tired of them. However, watching how my other teammates addressed them and maintained their composure encouraged me. These difficulties aided in my recognition of the significance of lifelong learning, whether for knowledge purposes or for situational management. I have a fantastic chance to gain new knowledge through the internet and my peers from various backgrounds.

Point 2: <u>Individual and Team Work</u> State the area: <u>Working together with different teams</u>

This project has pushed me outside of my comfort zone because I like to work individually. I discovered more about myself through this module and identified my collaboration strengths and limitations. My group has been divided into three main groups because there are many people involved in this project. One of the issues I faced is that our teams have been restructured repeatedly as the semester has progressed since no one is entirely certain of the responsibilities or tasks for this project. This creates confusion and gives me no direction for the project. As time went on, everyone started communicating more efficiently and listing out the to-do list. A leader is also chosen for each team, which is really helpful as the leader is able to offer us directions and tasks to do. Working as a team, in my opinion, is far more advantageous since it makes use of everyone's unique skill sets. The key to having a successful team is improved communication that leads to more

clarity. I've learned soft skills on how to communicate with different people and teams through this project and realized the importance of having a dynamic team.