

# **IM3080 Design and Innovation Project (AY2022/23 Semester 1)**

## **Individual Report**

Name: Chow Zhi Xin

Group No: 3 (Tubes)

Project Title: Cloud Tubes

### **Contributions to the Project (1 page)**

1. Optimized the raise function so that longer strip will raise faster
2. Implemented the raise function to run the color value send from frontend
3. Compile all the mode function to main.ino
4. Fixing and troubleshooting when main.ino has error being implemented
5. Coded blink and rainbow function which was not implemented
6. Decorate the structure with clouds and covering the sensor together with my teammates
7. Assist in soldering LED strips and fixing minor wire issues
8. Group documentation and slides with my teammates

## 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: Engineering knowledge

At the start of DIP, I wasn't expecting much from this module, thinking it was just another 2-credit module. But I'm grateful to be a part of this project with my group member, as I got to learn and view things from another angle.

One such skill and achievement I got through these 13 weeks was learning about Arduino how to code, set up the wiring and troubleshoot.

Initially, I thought it was going to be quite easy to take up this role, but reality hit me. I had to slowly learn about how the Arduino libraries are used, what `setup()` & `loop()` function was meant for, and how to use multi-threading.

One of the biggest challenges I faced during this project was learning about multi-threading. As it was a relatively new concept introduced to me. With the help of my teammates and google, I manage to have a better understanding of multi-threading. And was able to implement it into the project we are doing.

Looking back, I unknowingly started to gain knowledge through DIP as it encourages us to explore and research on our own. Supporting us to learn even outside of class, which is much more fun and enjoyable compared to taking exam papers and sitting in class.

### Point 2: Communication

Another skill I learnt from these 13 weeks was how to communicate with a group this big. Despite coming from poly, it is still my first time working in a group of 9 people. Which up front for me was a little intimidating, as it means I have to work with them and try not to overstep the borders.

As everyone comes from different backgrounds, it was a mess at the start of the project. We all had our own way of doing the project, and as the weeks went by, we slowly got on the same page. Moving forward together instead of independently.

I could also break out of my comfort zone and interact with most of my teammates. This helped a lot as it allowed tasks to be done efficiently without overlapping with someone else. My communication skill improved as I am able to present my point clearly to others when I explain the codes.

Although there is still room to improve, I felt like I have accomplished my personal goal to interact with all the members of the group. As for the academic goal, I was able to explain and clarify the concept of the codes to my teammates.