

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

### **Individual Report**

Name: Sng Guan Kai Martin

Group No: 7

Project Title: Flowerescent

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

Helped to research on ways to incorporate UART MP3 Player, finding ways on how to use UART MP3 Player module on our existing Arduino setup

Did research on sensors available, discovered Ultrasonic and Pressure sensors

Assisted in coding/set-up of Arduino Uno

Weekly scrum meeting with members, getting updates and problems faced, proving alternative solutions, as well as opinions

Administrative work such as liaising with profs as well as procurement and reimbursement of items as the leader

Assisted in Design team with their design, providing thoughts on idea proposed and feedbacks to their ideas

Finalizing idea of Audio team, finalized that using of pressure sensor is the better options as Ultrasonic sensors is too sensitive

Proposing new additional feature to team to see feasibility, lack of time to implement additional feature

Assisting Design team to get the product out, such as arranging, painting, cutting and other miscellaneous stuff

Installation of audio into whole setup, combining with light team (master-slave network), doing multiple testing of the whole setup

Video filming and editing using Adobe Premiere Pro, researching on images and videos to use in video

Report writing as a group and assist in slide's preparation for group presentation

## 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: Project Management and Finance

As the project leader for our project, I had to be more outspoken and encourage participation amongst my team members. At the start, I tried to gather feedbacks from members to see which area they are interested to work on, either to be part of audio team, design team or light team. After which I allocated tasks and providing deadlines for task completions. Every week during our default DIP timing, I will go to each team to get weekly updates and see if they need any additional help. I will also provide feedbacks based on their updates and if they need decision to be made, I will gather the team to vote on issues. As for finance, I try to keep track of all the items purchased and make sure every purchase fall within the budget being allocated to the group.

### Point 2: Lifelong Learning

As part of the audio team, I did not have any prior knowledge with Arduino. However, I made the effort to do my own study about Arduino, such as how to assembly Arduino Uno and how to code using Arduino IDE. I also did various research on how to allow Arduino to play sound without using mp3 module and discovered that using PCM method can be a way to play sounds using the frequency of the audio. Afterwards, I did further research on PCM to see how it works, such as assembly and coding of PCM components.

### Point 3: Communication

As the leader, I make sure tasks is being communicated clearly amongst members and make the effort to get frequent updates about progress weekly. I also get the necessary important information across members, such as deadlines, deliverables and making sure there is no miscommunications amongst members. Through this project, I understand the importance of 'Communication is Key', I come to realize how a slight miscommunication can lead to uncertain and disapproval amongst the group. I also realized that being a team leader or a team player, it is very important for us to communicate with one another. Since we are all working on the same project, it is important for us to build rapport and forge friendships so that the project can be accomplished smoothly without any hiccups along the way.