

# IM3180 Design and Innovation Project (AY2023/34 Semester 1)

## Individual Report

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Group 3

nIEMtendo

### Contributions to the Project

- Project planning and organisation
  - I played a role in project planning, including setting goals, timelines, and milestones.
  - I always held regular team meetings to discuss progress, challenges, and upcoming tasks.
  - I used our slides as our budget and resource tracking tools to follow our project expenses and resource limitations.
- Hardware selection and integration
  - I suggested the usage of the WS2818B LED strips, and infrared gesture sensor and plywood.
  - I played a role in patching these components together by:
    - Planning
    - Soldering
    - Measuring
    - Cutting and patching
- User experience design
  - I played a role in designing the user interface and overall user experience by:
    - Understanding the user's needs
    - Defining the design goals of nIEMtendo
    - Wireframing and prototyping
    - Incorporating multiple control options
    - Inclusive design for accessibility
    - Adapting to technology advancements
- Testing and debugging
  - Tested the functionality of each component after soldering (e.g., using my DMM)
  - Ensuring that the user interface elements, like buttons, gestures and visual feedback functioned correctly to provide an intuitive experience.
  - Observed how users interacted with nIEMtendo and then fixed the usability based on my observation.

- For example, I saw Prof. Chua slamming on the buttons so I put another layer of wood underneath the control panel to prevent the possibility of the event someone destroys it.
- Cost management
  - I ensured that the hardware components purchased were inexpensive yet were of good quality.
- Collaboration and communication
  - I always communicated my concerns and ideas with my teammates.
- Video, report, presentation
  - I contributed to all of them and was always punctual.

### Reflection on Learning Outcome Attainment

Reflecting on my experience in the nIEMtendo project,

- a) Engineering knowledge: my involvement in hardware selection and integration, including suggesting the usage of led strips and infrared gestures, demonstrates my application of engineering knowledge in choosing appropriate components for my project.
- b) Problem analysis: my role in testing, where I particularly observed user interactions and addressed useability issues, showcases my ability to analyse problems systematically and implement solutions to enhance the functionality and user experience of nIEMtendo.
- c) Investigation:
- d) Design/development of solutions: my contribution to user experience design, from wireframing and prototyping to adapting to technological advancements, highlights my role in designing and developing solutions that align with the project's goals and user needs.
- e) Modern tool usage:
- f) The Engineer and society:
- g) Environment sustainability:
- h) Ethics:
- i) Individual and teamwork: my observation of useability issues and proactive measures, such as reinforcing the control panel based on user interaction, reflects an individual commitment to the project's success.
- j) Communication: regular team meetings, communications of concerns and ideas, and my punctuality in contributing to the video, report and presentation underscore effective communication within the team. I did because I believed in the crucial role of clear communication in the team so that everyone is on the same page and can contribute effectively to the project.

- k) Project management and finance: my involvement in project planning, resource tracking and cost management highlights my skills in project management and finance as I utilised slides as budget and resource tracking tools reflects a practical and efficient approach to managing project expenses.
- l) Lifelong learning: throughout the project, I engaged in activities such as hardware integration, user interface design, and testing, indicating a commitment to continuous learning. This shows my adaptability in technological advancements and the willingness to observe, analyse, and enhance the project based on user interactions; I have a growth mindset.