



Statement Of Work

Educate children on waste management

DECO7381

Team Nico Nico Ni

Yibo Liu

Chenxi Li

Pin Lin

Junkai Feng

Zi Wang

Yifan Zhu



Introduction

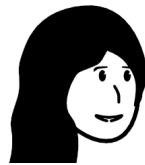
In the past few decades, people have become aware of the environmental problem around us and one of the actions that everyone can participate in is waste management. This project will be focused on educating young children on waste management through a game that is implemented on the mobile platform which is easy for them to access and interact with. Our team has decided to use Native React as the approach for the development of the project and we divided the project phase into 4 milestones which are design (week 4 & 5), prototype (week 6 & 7), development stage 1 (week 8 & 9) and stage 2 (week 10 & 11) then the final delivery. In the meantime, considering the ability of the team member we have allocated the most fitting position for everyone to maximise the time and effort and the details will be discussed in the following sections.

Member Composition



Team Leader
Yibo Liu

Skills:
Full-stack Developer,
Architect
Front-end/Back-end
development



General Supporter
Chenxi Li

Skills:
UI/UX Design,
Research,
Professional writing



General Supporter
Pin Lin

Skills:
UI/UX Design,
Research,
Professional writing



General Supporter
Junkai Feng

Skills:
Front-end
development,
Presentation,
Professional writing



General Designer
Zi Wang

Skills:
Design, Front-end
development,
Communication



Full-stack Developer
Yifan Zhu

Skills:
Front-end/Back-end
development

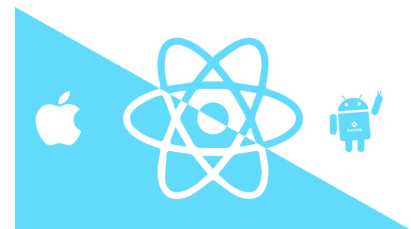


Features & Developing Tools/Technologies

Based on the development requests we received, we will build a mobile application that provides the interaction which allows the target users (kids at years 2-4 ages) to play the game. The users can learn how to sort the different types of garbage properly through place the garbage that appears on the screen in the correct bin.

We researched several major mobile development methods, including the native development for Android (Java) and iOS (Objective-C or Swift), and the cross-platform development frameworks such as Flutter, React Native, Ionic, etc. After considering the knowledge and technical skills of our members, the difficulty of learning each of these programming languages or frameworks, and the time and money cost of development, we finally decided to use React Native to develop of this mobile application.

React Native ("React Native · Learn once, write anywhere", 2022) is an open-source framework based on JavaScript, and the styling part is very close to the normal CSS formatting. It allows developers to build the mobile application on multiple platforms like iOS and Android with nice performance and it supports most of the native functions of the mobile device. Our team has three main developers who are more familiar with HTML, CSS and JavaScript. Thus, with React Native, we can get into development much faster than learning a new programming language.



With the combination of React Native and Expo (a framework that can build and test the mobile application), we can share the progress of the development as a real app with each team member by simply scanning a QR code, and we can even make the modification in real-time if we want. This makes each team member visually stay on the same page through the demo app, greatly improving the efficiency of development.

Moreover, from an economic point of view, so far we have no plans to put our mobile app on Google Play or Apple Store yet, so using React Native and expo for development and presentation requires no extra money cost and no mandatory requirements for specific hardware and operating system used for development, which we think is the most suitable framework for the project requirements at this stage.

For the source code version control, we are going to use GitHub ("GitHub: Where the world builds software", 2022) to update and manage our source code of development. Using GitHub allows us to develop the mobile app simultaneously and it provides backup to avoid the potential accidents of losing data or overwriting the code incorrectly.



Project Plan

Project Timeline and Milestones (see appendix)

Project Deliverables

The deliverables of the project will include the following:

- Process deliverables
 - Initial brand and UI design
 - Team meeting logs
 - Statement of work
 - Kickstart style video
- Product deliverables
 - Kickstart style video
 - Promotional materials (ie. posters, flyers)
 - Final product prototype

Assumptions

Resource assumptions

In this project, react native is used as the main tool for making App. Although our team members have a clear division of labour, the number of back-end coders is limited to two, there may be challenges that the skills of the personnel do not match the needs of the project.

GitHub is used as a management tool. The time cost is estimated at around 10 weeks, and the team members will record the progress of each week to ensure that the project can be completed on time for each stage.

Scope assumptions

This project is committed to guiding children's understanding of garbage classification. The users of this project are mainly children and their educators. Therefore, when doing user experience testing or research like surveys and data analysis, we will be aware of the particularity of the target audience.

Different countries have different standards for garbage classification. This project will only be targeting Australia's market according to the proposal. Therefore, the related research should not be global but only Australian policy-focused.

Potential Risks

Time wasting/delaying

The habit of procrastination has proven to be common among students. But in teamwork, everyone is part of the project. A delay by one person may increase the waiting time for others or cause a delay in the whole project. Therefore, strict timelines need to be set to ensure efficient productivity.

Misunderstanding

Each person's expression may differ, and failure to communicate clearly may lead to unnecessary misunderstandings, such as when tasks are performed in a direction that is inconsistent with what is needed. Therefore, communication between group members needs to be enhanced to ensure that each one understands their tasks and work.

Disagreement

We can't always agree on everything, and team tasks will always face disagreements. The team needs to communicate their ideas in a timely and effective manner to reach consensus within the team.

Emergencies

We can't avoid unpredictable emergencies that result in staff shortages, such as a member falling ill and not being able to provide real-time assistance. Therefore, we need to have prepared solutions to address such emergencies, such as replacement technicians and adequate set-aside time.

Security risks

The project relies on IT, and each job and task need to be saved and backed up in real-time to prevent lost/unsaved content due to unexpected events.

Riskmarix and Mitigation

1. Ethically, we must ensure that the work of each of our team members is done independently, and that data and images referenced from others must be effectively annotated. A member of our team will be responsible for a unified reference format check to ensure that we use a unified format. On the other hand, since our software is aimed at minors, we must ensure that our content is healthy and legal, without violence or pornography.
2. In terms of security and data privacy, we will record user information in the form of a database, and we have dedicated team members responsible for database construction and security. We will do our best to protect the privacy and security of our users.
3. In terms of project risks, the risks we may face include:
 - a. The task cannot be completed on time: regarding the risk of tasks not being completed on time, our team's strategy is that we use Trello to monitor everyone's progress, and during weekly meetings, each of our team members also discusses their own progress if a team member feels when the pressure is too great to complete, our team will try our best to help him complete this part to ensure that our homework is completed on time. At the same time, our team will hold a meeting the day before each deadline to go through our project progress and make sure that no missing parts are used.

- b. There is a bug in the project: unexpected bugs in a project can be one of the most common project risks. For this part, the strategy adopted by our team is that we will invite some members outside the team to test our app, and we will also have special team members to analyze the results of the test and hold meetings to put forward suggestions for improvement.



Collaboration Plan

Our team collaboration plan includes

1. Highlight personal strengths
Not everyone is a great coder, and not everyone is a successful speaker, but a successful team thrives when everyone on our team plays to their strengths.
2. Develop honest and open communication
Good teamwork relies on honest and open communication. Only when everyone is willing to share their true thoughts, team members be more willing to contribute to the team. The more ideas that can be shared, the more productive the team will be.
3. Share knowledge and resources
The knowledge of different members will bring different vitality and creativity to the team. The sharing of knowledge and resources between teams can effectively help the team achieve goals. Effective use of file-sharing software can help us achieve goals effectively.

On the collaboration tool, our group will use Teams for meetings and discussions. We will also use Discord and Zoom for video conferencing if there is a lag or problem with Teams. At the same time, this does not mean that we will give up face-to-face communication, we will use the time of the studio every week for face-to-face communication. At the same time, we will use Trello to record everyone's work progress, so as to ensure that tasks are completed on time.

In terms of meeting time, weekly studio face-to-face communication is necessary and very important. Our group agreed that face-to-face communication is the most productive. On the other hand, our group will also use Teams or Discord to conduct online discussions every week. When a deadline is approaching, the frequency of our discussions will increase to 3-4 online discussions per week. At the same time, we will hold another meeting the day before the deadline to make sure that the assignments we hand in are free of errors and problems.



Reference

React Native · Learn once, write anywhere. Reactnative.dev. (2022). Retrieved 12 August 2022, from <https://reactnative.dev/>.

GitHub: Where the world builds software. GitHub. (2022). Retrieved 13 August 2022, from <https://github.com/>.

Appendix

