GNG1103

University of Ottawa: Faculty of Engineering

Project Deliverable G: Prototype II and Customer Feedback

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Group 4

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Abstract

In the previous deliverable, an initial prototype was built to base the remainder of the project on. The purpose of this deliverable was to continue working on the basic features of the mobile application, develop more areas of the application and discuss the client feedback that was received. The client's feedback was overwhelmingly positive, indicating that the conceptual design was a success and that product development can move forward.

Introduction

In the previous deliverable, I underwent development and was subject to client feedback to design the next prototype. The purpose of this deliverable was to continue building off of prototype I and to continue creating more aspects of the application. This deliverable will be divided into three main sections: prototype II, customer feedback, and the project's next steps.

Prototype II

The main focus of this prototype was to complete as much of the application as possible. It was a comprehensive prototype, including the updated home screen and main screen and the new options page and calendar page. This prototype was subject to more testing methods compared to the prototype I.

The Home Screen

The home screen application will be the first screen the user sees when they open the application. It included buttons that will lead to the main screen, a calendar page, a rewards market/achievement, an options page, and a tutorials page. Figure 1.1 below is a screenshot of the application home page on Unity. It is shown how all the previously mentioned buttons have been developed, and a portion of them have been developed using Unity script. Namely, the button that allows the AR function to run and scan the items has been fully developed.

Regarding what needs to be completed for prototype III, code for the number of points/coins that the user has will be imputed on the top left corner of the application. Everything else on the home screen has been coded for and connected to the application's respective portions.

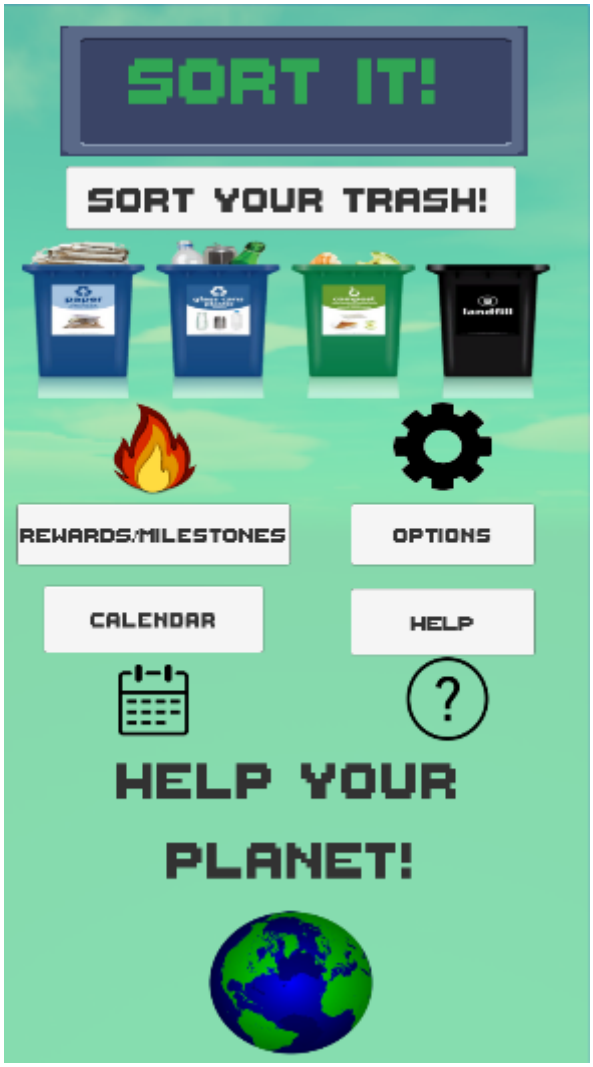

Figure 1: Home Page

The Main Screen

The main screen, also known as the AR scanning screen, is the most crucial part of the application. This page will allow users of the app to scan their recycling products and sort their products into the correct recycling bin. Figure 2.1 below demonstrates how the main AR screen of the application will look on Unity. The black background on the screen indicates how the main screen will be using the camera input as the background.

Other features of this page include three buttons (for each of the possible bins) to allow users to attempt to pre-sort their item before the correct answer is revealed.

Regarding what needs to be completed for prototype III, the app must be tested using more objects and a phone. The testing needs to involve multiple items to make sure the app is reliable. The main screen must also include a game within the scanning screen or the application.

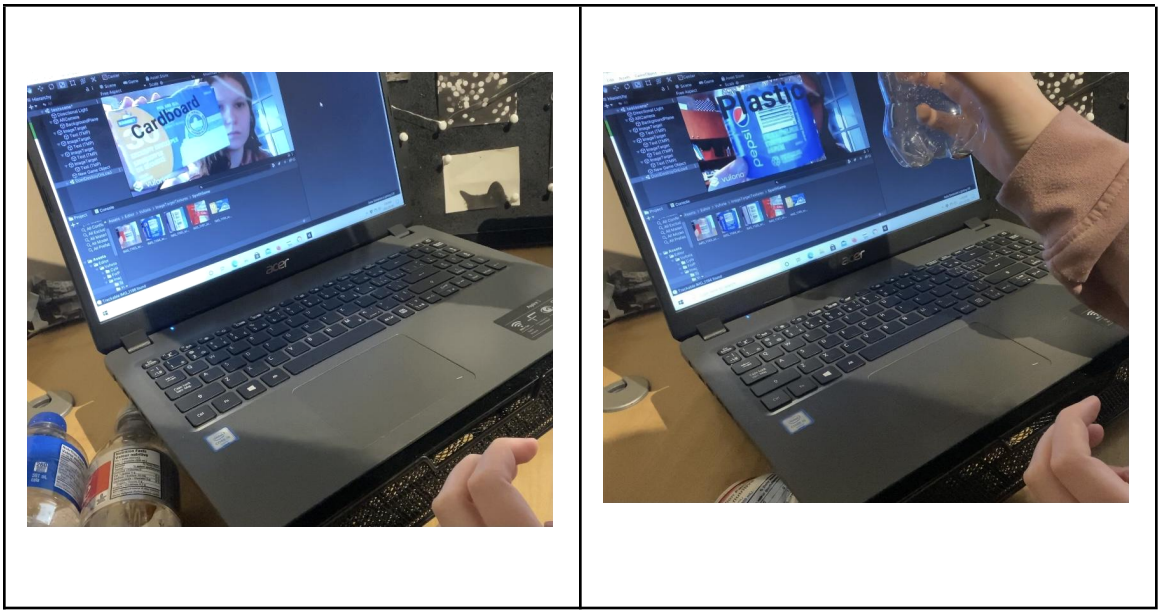

Figure 2: The app identifying recyclable materials

The Options Page

The options page offers an area where users can input their address and control other essential app functions like volume and language. Illustrated in figure 3, everything in this prototype is new to the app's development and features input boxes for the users' name, address, and save, load, and return to the main screen button.

For prototype III, a volume and language control button remains to be implemented and scripted within the application.

Figure 3. The Options Page

The Calendar Page

The calendar will inform the user of the dates when recycling is being collected in their city/area. The user will manually input their location, and the application will automatically collect data regarding their city's recycling policies. Furthermore, the user can manually input the dates that they deem necessary, and the app can remind them of those too. It features an embedded web feature that displays the Ottawa Collections Calendar site, where users can input their address and get their collection dates in calendar form.

There is nothing that needs to be completed for prototype III, as this page is complete with all features it requires.

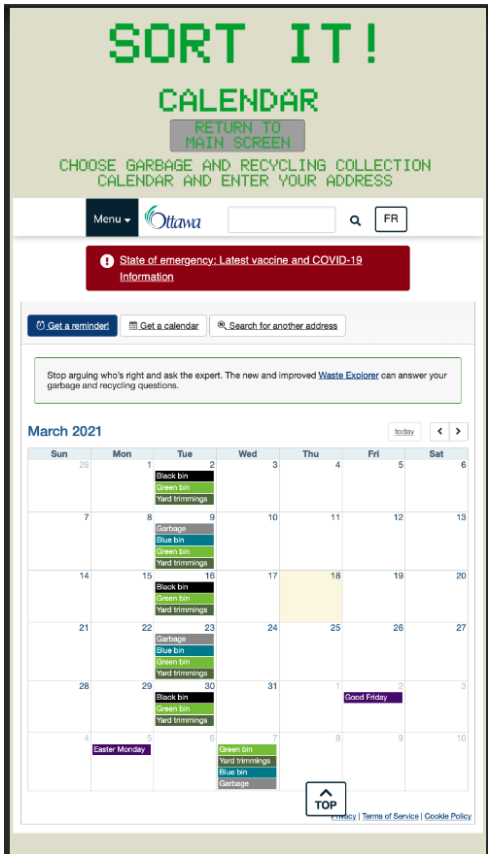

Figure 4: Calendar Page

The Rewards Page

The Rewards Page has been adapted to standard phone dimensions and has an updated user interface (UI). Buttons have been added to the scene, as well as text labels to indicate what the rewards cost, as well as what they are. Daily rewards have been added, although the coding of this rewards system remains to be seen. Also, milestones have been added to the UI, but the game's development must continue for this functionality to work.

For prototype III, the rewards market will need to be synchronized with the game to spend the coins they earn from the game to buy from the market. Furthermore, the coding of the daily rewards system and the milestones system will need to be created. In short, the currency will be an essential feature that prototype III must incorporate.

Figure 5: Rewards Page

Testing

The testing phase is one of the most critical parts of prototyping. The main tests completed to see if the application was functioning were determining if it worked on the Unity device and if it worked on a mobile device of both IOS and Android. The Unity run's stopping criteria were whether the buttons functioned correctly (as they were scripted) and if the screen placement was good. If the AR camera background performed correctly, the mobile devices' stopping criteria were if the buttons worked on the device, if the application layout worked on a device of any screen and if it worked on both platforms.

Regarding the testing results, there was not sufficient time left to put the application through testing on a device that was not a phone. The application was tested on the Unity software, but there was insufficient time to compile and send it to a phone.

The Unity software can identify recyclable materials by adding recyclable types to the front of the object.

Feedback

Feedback for prototype II consisted of two main types: expert feedback and general feedback. Expert feedback was received from an expert who has extensive knowledge and experience in coding applications. Feedback was used to discern how the application looked from an engineering perspective. The general feedback was received from the application's customers as well as future users of the app. This feedback was used to gather feedback on the user experience, whether it followed, and what the customer wants to be developed.

Expert Feedback

The expert feedback received for prototype II consisted of feedback about the application's overall aesthetic and the relevance of certain buttons and pages. First, the expert explained how they were not a fan of the page's overall aesthetics and how they would make the colours less harsh on the eyes. They also explained how the application should consist of uniformity throughout the pages. Other feedback received described how the tutorial and help page are synonymous, and only one should be chosen to get developed further. We were also warned to be cautious about implementing a different language throughout the application, as it might not be feasible for us to follow through.

In response to this feedback, changes were implemented in both this prototype and for the following one. Our group has decided to look over the application's overall aesthetics and cut out the help page from our development.

Other Feedback

The general feedback was received from both future application users and the customer, teaching assistants and the professor. Feedback received from the teaching assistants and professor was to add the text on top or the bottom of the screen instead of the object's top. The customer had positive feedback about our design and maintained that he had nothing to say about it.

Conclusion

For this prototype, we could continue to build off the previous features discussed in the last deliverable. We received a lot of input from many people, including experts, general users

and the client. All of the feedback received will be taken into account when developing the final prototype.