uOttawa

University of Ottawa

GNG 1103: Engineering Design

Deliverable H: Prototype III and Customer Feedback

Project Group C12

Group members:

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1. Introduction

In this deliverable we will be looking at our final prototype. This third prototype needs to be a fully functional and complete product, ready to be shown off on design day. Like our last prototype, this one will be based on the builds of our previous prototypes, including all of the features we already worked on, as well as some extra features we have completed. In this deliverable we will look at the results from our previous prototype, which helped guide us through the completion of this one, as well as our test plan outline, and future analysis.

2. Results From Prototype 2

Brief notes taken during the group's meeting with T.A. Ebin Joseph, held on March 22nd:

- Objects need to be 3D or animation (both can and recycle bin); Ebin was convinced they were not
- The can (the cylindrical item) cannot be manipulated by cursor on desktop, only by finger on phone
- Script added: .SceneManagement
- Desired: "Something" to happen once the can (cylinder) is placed inside/thrown into the recycle bin
- Issue being addressed: Whether the cylindrical can is falling through the plane (therefore passing through the recycle bin) or actually entering the recycle bin
    - Is the cylindrical can considering the recycle bin as invisible?
        - That is, there is no interaction between the can and the bin – therefore, the can is passing through the bin
        - Melissa said: Could "collision detection" be the solution?

The Prototype II, while an improvement over the previous prototype, still held onto technical issues as firmly as the Greek mythological god Atlas with the heavens. Any compliments for the app were overshadowed by the frustration in its troubled functionality. A most pressing issue, up-ending the "Pokemon Go"-inspired gameplay, was the noticeable lack of interaction between the manipulatable object (default: grey, recyclable, cylindrical can) and the intended receptacle (default: green recycle bin). That is, the action of the user "throwing" the can – swiping with a finger – into the bin gave no indication that the can had *actually* entered the bin on the screen, unlike how a can is wont to do in the physical world. Instead, like a ghost through a wall, the cylindrical can seemingly passed through the recycle bin. Fortunately, the issue has since been mended. Furthermore, on another day in the same week, Ebin Joseph was kind to meet again with the group to address and fix any lingering errors.

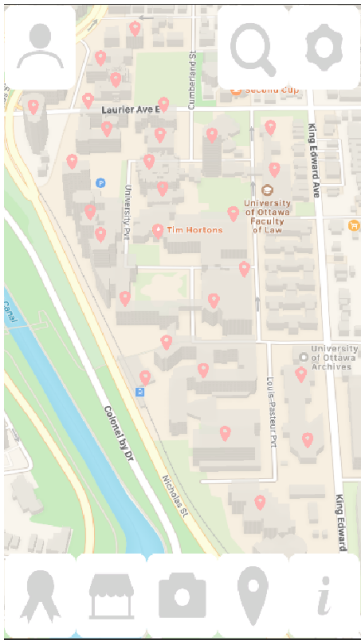
3. Prototype III

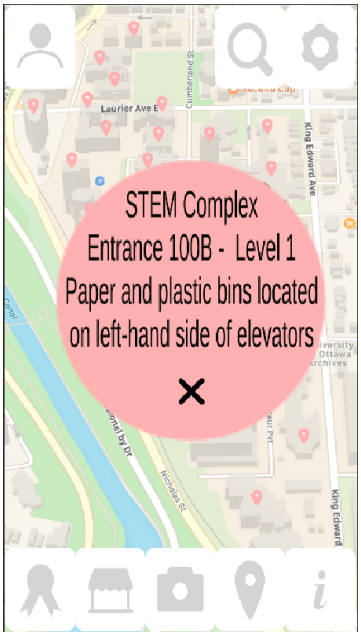
Game Scene

The game scene allows the user to take the item that they have scanned and “toss” it into the recycling bin. The item, such as a Coke can, can be transposed by the user’s fingers. If the user succeeds at tossing their item in the bin, they are rewarded with various icons and themes and profile pictures.

Map Scene

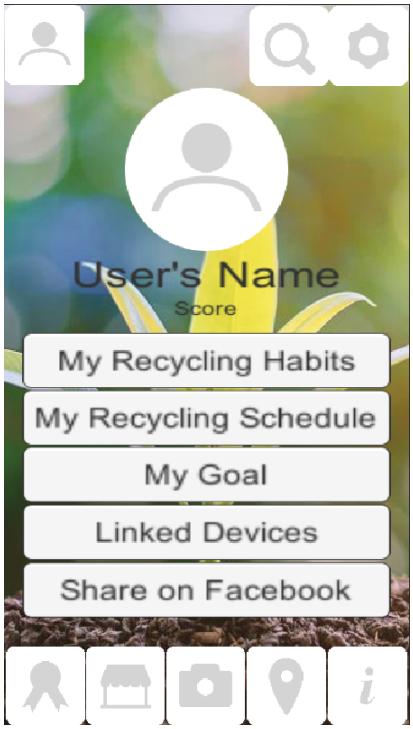
In the map scene, the user can locate the majority of recycling bins on the University of Ottawa campus. Each pink pin is a button that opens the circular information panel with more precis bin locations.





Profile Scene

A background was added to the profile scene. This background is carried through in the settings scene and information scene. In addition, the “My Recycling Schedule” button brings the user to the City of Ottawa disposal schedule when it is clicked.



4. Test Plan Outline

With design day rapidly approaching, Our group has been more pressured than ever to complete our final product. However, throughout that process we have not sacrificed the quality of our application to get it done quickly. To ensure the standard of our application is held to the highest degree we need a good test plan. When we created our initial prototype we faced a few unforeseen issues, such as Unity bugs and a general lack of knowledge on how to create an app. Unfortunately, this threw us off and forced us to rethink our entire product as a whole. We realized some of our ideas were fairly difficult for the three of us to make. Because of this, we altered our expectations and properly planned out how we were going to accomplish this. Our plan of action was fairly simple. We divided up the work and picked what we felt most confident in. Doing this allowed us to bring out the best in each other and create something we can be proud of. After working on our separate features, we would have a team meeting and review the features we just created. While doing this we would get feedback from each other on possible improvements and revisions. After tweaking our features we would then put it all together and test it accordingly. This test plan allowed us to work effectively on our individual ideas, while still being confident everything else is being covered. By planning, creating, revising, testing, and then improving, we were able to make a product that we can all be proud of.

5. Feedback and Results

Now that the final prototype is complete, we have asked a few people to try our application on the Remote 5 app. Though this app does have some limitations when linked with Vuforia, the overall feedback was positive. There were a couple features that did not work as well as we had intended, but they did not affect the user friendliness of the application. The information scene and the map scene were well liked. The game scene, although it only consists of one game, the users liked the concept.
The feedback provided from the TAs and PM during the last lab was all positive and encouraging. They appeared to appreciate the map scene and its ability to be pinched and moved around. We did require some assistance with the game scene but once that was completed, the game worked as we had hoped it would. While this is the final prototype, we will continue to make some improvements and seek feedback from relatives and friends.

6. Analysis

While we had planned to enhance the features already included in the application, this process took longer than expected. The majority of features in the map scene, game scene, profile scene and camera scene were refined. This includes additional button features such as opening URLs and pop-up information panels. There remain some buttons without functions such as “my recycling goals” and “link to Facebook”, but we hope to include these functions in the future. The map scene has been enhanced with

additional recycling bin location pins and their corresponding information panels. In addition, the Vuforia database was increased which allows more objects to be identified by the user in the camera scene. Although the application can now identify more objects, the information panels associated with the identified objects were not developed as much as we had hoped they would be. Finally, the game took much longer than we had anticipated thus only one scene was created. Though this wasn't as much as we had anticipated, it gives the customer an idea as to what the game will involve. While there still remains minor features we would like to include in our application, we have included all the features necessary to meet the client's needs and desires. Since there is nearly two weeks until design day, we will continue to enhance the features we believe could increase the user friendliness and accuracy of our application.

7. Future Plans

In the coming month of April, the group is expected to have the design project in its final, polished form, as well as a thrilling presentation thereof. Thus, that expectation is owed satisfaction. In the Unity program, since the functionalities of the app have been repaired in the preceding days, the aesthetics of the app can instead welcome change in the succeeding days – be retouched and reconsidered; colours adjusted. Also, the inclusion of multiple languages in the settings of the app can be tried, netting a larger audience of potential users. To continue with aesthetics, more artwork could be implemented for the "Pokemon Go"-like gameplay feature: Additional caricatures for obtainable items could be visualized. There are plenty of recyclable materials for any consumer of goods, so the pool is quite deep for ideas. Furthermore, cute, playful, and creative images support an enticing market; seemingly the rule of the Internet is that, just like salt or cheese with food, cute animals (kittens) enhance whenever involved.

Testing: The app still requires further testing. The group shall download the app onto multiple devices. Any issues of use – its user friendliness, speed, glitching, and stability – should be addressed in the dwindling days until the finish line is called.

Presentation: The group is soon due to showcase the makings of a designed app; therefore, a speech and visual aids are required for the design day. Attention-keeping, informative, and trouble-free: the presentation aims for those attributes. The visual component will consist of Microsoft PowerPoint slides and a rendition of the app in active engagement on a mobile device – as would be the format intended for its consumers and users. Ideally, the use of the app will be a live demonstration by a group member; however, for caution against the very common complaint of technology failing at the utter worst time, there will be prepared a backup: a pre-recorded demonstration of the app in action.

Final Deliverable: The manual for the app, somewhat pieced together from content of previous deliverables, cannot stand as a “Frankenstein’s Monster”-like display for its submission. Just like a fresh layer of asphalt upon a dilapidated road, cursed with potholes and fractures, a smoothed structure will benefit the manual. Access to the Unity program, given the availability of a computer capable of handling that behemoth of a load, is not entirely necessary, so all group members are within their ability to assist with the writing and formatting of the manual.

8. Conclusion

In conclusion, for our third prototype, we have successfully built the product we will present on design day. We followed a strict test plan and through our commitment to this project we have created something that we are proud of. This final prototype works well, looks how we want it to look, and functions exactly as intended. Our product tested our abilities and pushed us to new limits, all in a short amount of time. As design day approaches, we can shift our effort to creating a good pitch to impress the judges.