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University of Ottawa

GNG 1103: Engineering Design

**Project Deliverable F: Prototype I and
Customer Feedback**

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1. Introduction

In the previous deliverables, we have looked at what the client needs, what we have access to do, what each member of the team has conceptualised and put it together. In this deliverable, we will look at the creation of our first prototype. This includes the process, the step planning, the stage testing and how we choose to improve the work. Our work will be tested among team members multiple times until we are sure the work we have completed is satisfactory. This deliverable will let us better understand how we may create a better prototype for the coming weeks and soon our final prototype. With each prototype, we improve our design and our understanding of specific aspects to clearly know what we need to improve or change in terms of functionality, aesthetics and usability.

2. Prototype I

2.1. Main menu

The main menu has the most features all grouped in one spot for this prototype. There are 3 features linked to starting a new project as well as two additional buttons that lead the user to either the tutorial or an FAQ.

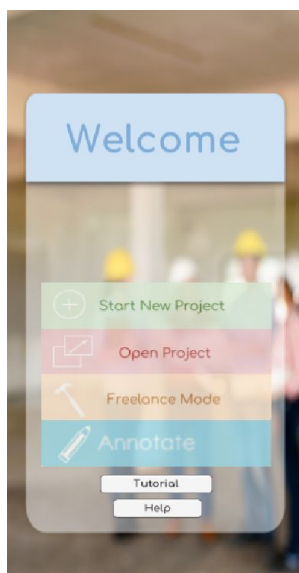


Figure 1: English Welcome Screen as seen in Unity game view



Figure 2: French Welcome Screen as seen in Unity game view

2.2. Video tutorial

The video tutorial button brings the user to a video that explains the basic features of the application. For this prototype, we do not yet have a tutorial video, however the tutorial button brings the user to a dummy video.

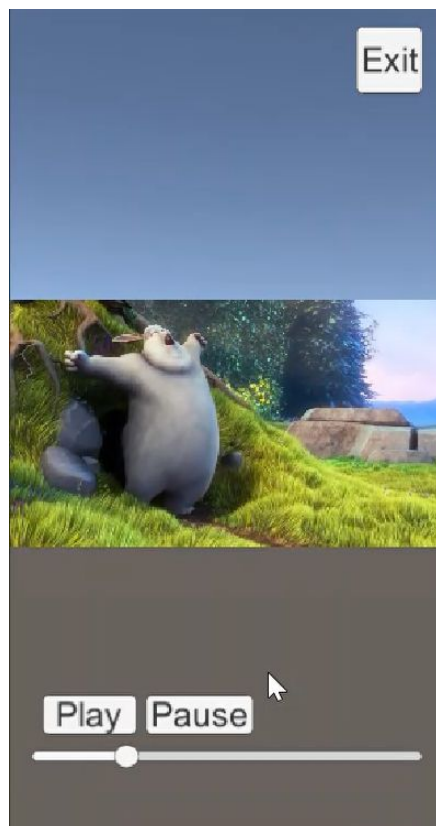


Figure 3: English Tutorial Video Player as seen in Unity game view

2.3. Annotate

In the annotate scene, the textbox prompts the user to type unlimited characters. Users may also scroll up and down by clicking and dragging the scroll bar as shown in the screenshot. When the user clicks done after finishing their annotation, the information is saved into the app data (functions like a cloud). There is also the return button here which will be accessible everywhere throughout the app to let the user switch in between scenes.

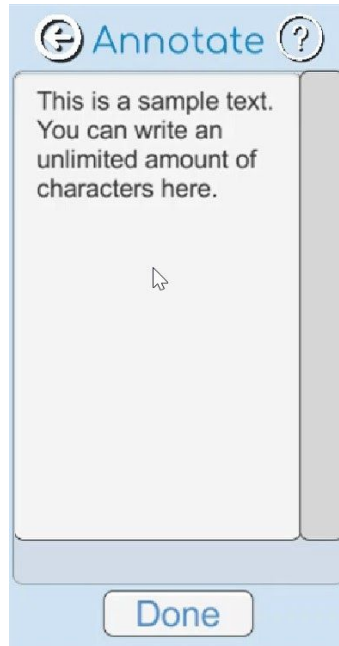


Figure 4: English Annotate Screen as seen in Unity game view

The help button gives the user access to a pop up that shows how to use the annotate feature.

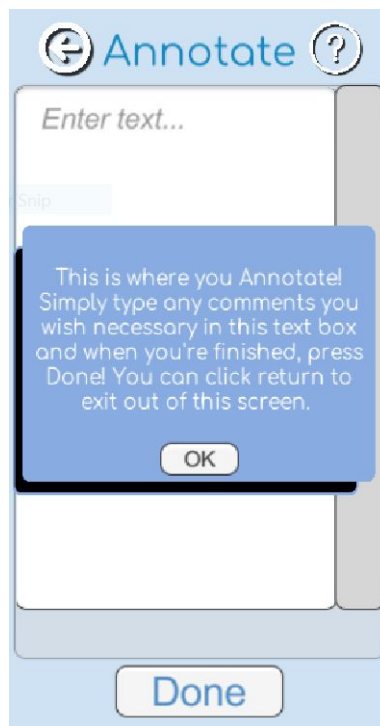


Figure 5: English Annotate Help Pop-Up as seen in Unity game view

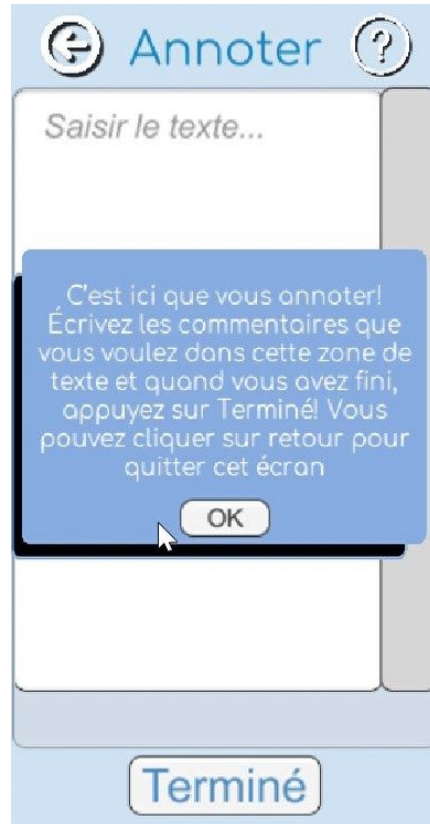


Figure 6: French Annotate Help Pop-Up as seen in Unity game view

2.4. Language settings

The language setting is a very simple feature. By choosing either English or French, it interchanges between the two languages depending on what the user chose.



Figure 7: English Language Selection Screen as seen in Unity game view

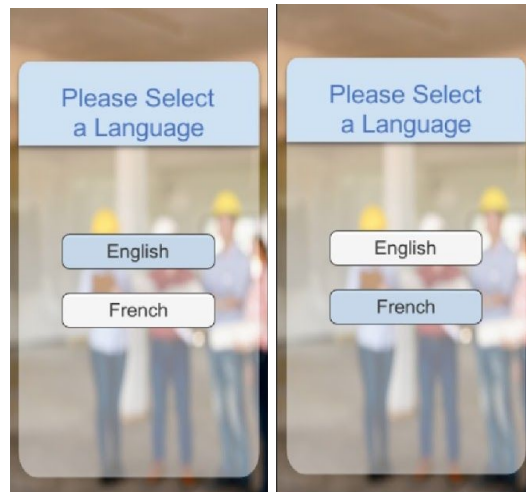


Figure 7.1: Language Selection Screen as seen in Unity game view when user hovers over buttons

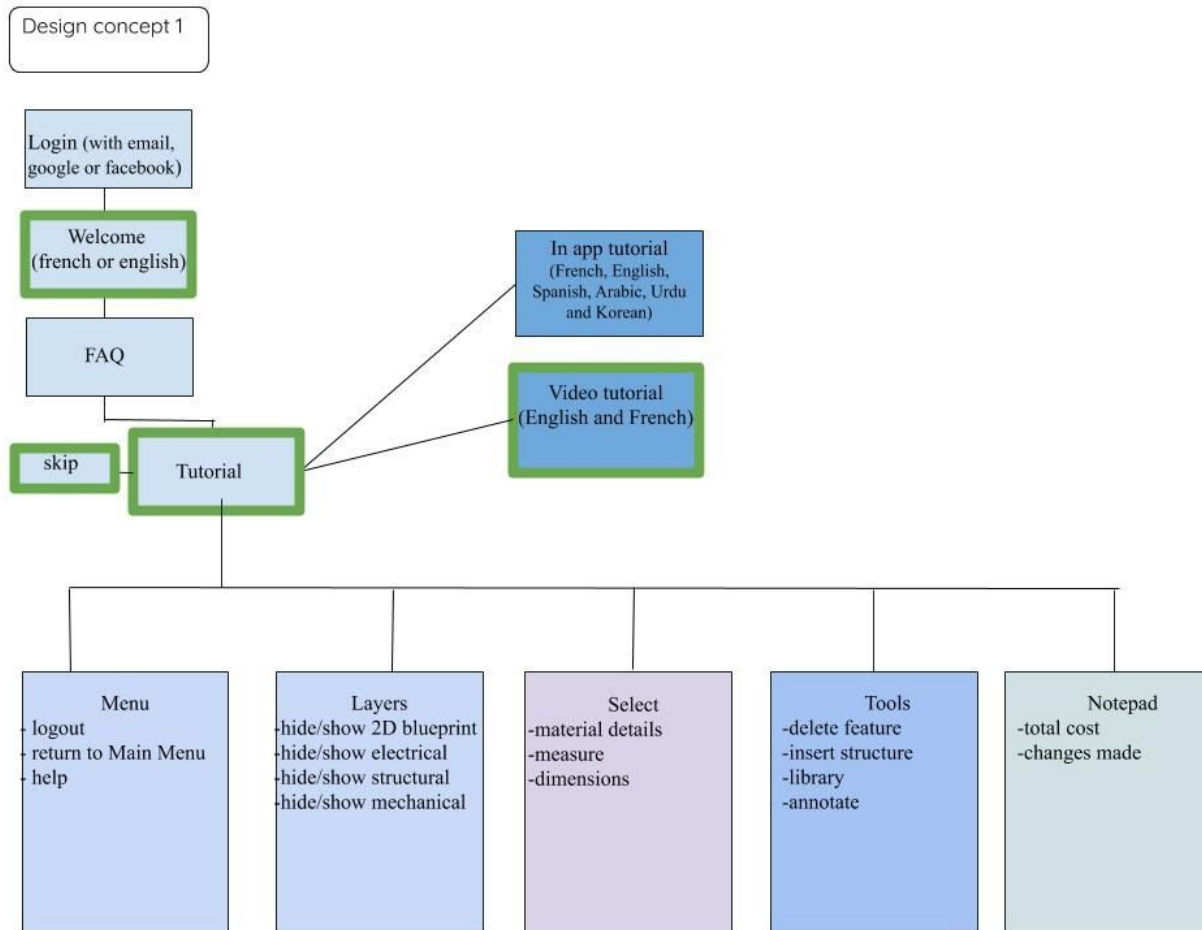


Figure 8: Design Progress

3. Prototype Test Plan Outline

Based on our previous deliverables and designs, we are now able to create our first prototype. This step in our process is fundamental to see if what we produce is feasible with our initial design ideas. This first prototype is a very simplistic version of what our final product will resemble. For this first prototype, one of our main goals is to understand the basic functionalities of Unity and features of our application. By separating the tasks among team members, we each took on a specific scene to develop through Unity to finally put it all together. At the end, we obtain a very simple application with a main menu, a language selection setting, a video tutorial and an annotate page. Alongside those scenes, we have simple features like buttons, text boxes and a return button that are essential to the application's functionality.

Once every team member completed their individual Unity scenes and we put together the prototype, we let five different people use it. Having multiple people try out our prototype let's us collect individual feedback from each one of them on their experiences. The feedback



obtained by each person would relate to aesthetics, ease of use and overall user experience as well as opinions. The point of making others use our prototype is to get critical feedback from people unrelated to the process of building the application, giving us fresh and different perspectives on the product.

This prototype helped us better understand different features on Unity and their purpose. By creating only a handful of scenes, we can focus on the quality of each scene instead of focusing on creating a large number of them. As we advance towards the future prototypes, they will grow increasingly more complex and will require more content, therefore, starting simple to fully understand every aspect of our scenes will help us be able to build off of what we have started with. For this first trial, we have created functioning text boxes that save information, functioning scroll bars, functioning buttons that lead the user to different scenes, functioning return buttons, functioning welcome page and all the necessary coding for each of those components. Although we specifically looked into setting up the AR camera because it is fundamental to the product and seems to be one of, if not the most important part of our application, we have not yet developed it for this first try. Considering our next prototype will require more scenes to be completed, since we have started with a properly functioning application, it will be easier to build off of it and add the AR camera feature. The second prototype will also allow us to explore more complex features to add to our program since the basics have already been covered. The first prototype did require a considerable amount of time as team members needed to familiarise themselves with Unity. This process took the longest since everyone had different tasks to complete and each one of them required different types of code. For this first step of familiarisation, members of the team had to work closely with each other as well as with the TA to effectively create the application. Although this took the most time to do, it was an essential part of the process to build our application since team members have now gotten familiar with Unity which will give us a clearer idea of what building our final prototype will be like. These first few steps showed us how much time working on Unity requires, whether it is because the app itself can be slow or because it takes time and effort to build scenes.

As our workload increases for future prototypes and deliverables, this first step helps us envision how realistic or unachievable some of our ambitions may be. However, this is useful for our project planning because now we can confirm or modify our plan if we see that we need to give Unity a bigger time slot than we had initially scheduled. Our first prototype was built and tested out on multiple users right before our third client meet. The convenient timing let's us plan, prepare and modify our first prototype to show the client. We will stop work on the prototype when we are satisfied with our functional application. This will be after we have received feedback from different users and modified our product to respond to the user feedback.



4. Analysis

In our first prototype, we were able to create very basic characteristics for our application. These initial steps are very important to ensure that we can later on add to what we already have instead of needing to restart from scratch for every single characteristic. Out of all of the work we have done on unity, the simplest thing to do was create buttons for sections like annotate, language settings and even the video tutorial. However, what has been more complex to figure out is how to utilise the AR camera and make it functional with the rest of application. Although we did not incorporate this into this first prototype, planning it for the next one was involved in the process for the first one. We need to therefore focus more attention on that aspect of the application. Seeing that creating buttons is very simple, we now know what will require more time to build and what will require less attention. With this knowledge, we may schedule our work in a way that will account for what needs more time. Coding on Unity let us as a team plan how to build the rest of the application by utilising what we have learned. This first prototype also helped us see if there were any ideas we needed to simplify even more to incorporate into our built application.

5. Feedback and Results

After five different people used our application prototype, we were able to collect feedback from all of them which will help us improve our product. The general feedback from the users was a positive response to how simple the scenes are. The simplicity of characteristics in the prototype made it easy for them to understand each aspect on the screen without any confusion about functionality. However, the testers suggested that from an aesthetic perspective, we had margin to improve. In fact, the simplicity of each scene leaves a lot of blank space which we can utilise to make more aesthetically pleasing. Another common opinion is that this first prototype is very simple and there isn't much to do. Since this is our first prototype, it is supposed to be very basic and there is not anything to do other than pass from scene to scene. Finally, the users really liked how easily they could go from one scene to another with the click of a button.

For this first prototype, we were able to make our initial designs into actual scenes on Unity. We created a functional language setting, a functional annotate scene, a functional video tutorial as well as a proper main menu. We've also managed to incorporate the AR camera into the application. In terms of our user feedback, we need to improve the overall aesthetic appearance of our application. We also need to add more features that the user can use to make it more interesting to them. Since this is only our first prototype, and the main goal was to create something functional and very basic, it is a success because it is what we have achieved. We in fact made a very primary version of what our final product will look like. Although we've



managed to build critical components to our final application, we still have many things to build as well as improve to create the final properly functioning application.

6. Conclusion

In conclusion, we have built our first prototype following a specific prototype plan. This helped us validate some questions we may have had throughout the building process as well as give us a clearer idea of how much time is required to build a product that meets our team members' standards. This initial prototype helped us as a team, get a better understanding of what our problem is as well as how we may achieve its solution. As we advance towards our future prototypes as well as the final product, we will include the feedback we received from users as well as adding more features in increasing complexities.