**CS325 Group Project   
Assignment #4**

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# Introduction

We are Buixel, and we believe in using AR to enhance the daily online lives of people.

Buixel operates on our own application, and e-commerce companies can partner with us to integrate our system into their platforms. Having the ability to scan their products into a 360-degree 3D model view allows consumers to access them easily through our application with high accuracy.

By simply signing up or logging into our application via Google or Facebook, sellers are able to integrate their products into our application by 3D-scanning their items into the system. Sellers are able to view and list their items on sale with their 3D products. Users will be able to utilize Buixel to then view and capture these 3D objects, augmenting them into their environment, to better view how these products would fit in their surroundings.

The evaluation sessions are an opportunity for Buixel to improve upon our application and better the functionalities to suit our targeted audience.

# Buixel Application

Buixel is a software that allows you to see products through an Augmented Reality (AR) interface, where you can observe your product through an augmented environment with your mobile devices / AR goggles.

# Target Users

We have invited 3 participants of different age groups to help test the final interface of our Buixel Application.

## 3.1 Participants Background

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| --- | --- | --- | --- |
| **Name** | Sun Ping | Corliss | Hidayat |
| **Age** | 40 | 30 | 20 |
| **Gender** | Female | Female | Male |
| **Occupation** | Retiree | Working Adult | Student |

# Apparatus

Our team has used a revised version of an Executable built from Unity Engine for our evaluation sessions with our participants.

# Evaluation Session 01

## Simple Task - Signing up / Logging In

### Introduction:

The task is to evaluate participants’ ability to intuitively sign up and log in to our Buixel application without any assistance. Observers will be taking notes on the time taken or any confusion is present during the test. Participants will also be tasked to view items as buyers as well as scan and list items as sellers. Observers will be taking notes on how intuitive the main system is.

### Goal of the task:

Participants are to demonstrate the ability to understand the login system regardless of which method is used.

As buyers, participants are to demonstrate their understanding of how to view items, how to inquire about items, as well as how to purchase items. Participants must also show the intuitiveness of utilizing AR to view the 3D models in their environment.

As sellers, participants are to demonstrate their understanding of how to upload their products into Buixel, how to scan these products, as well as how to list the products for sale. Participants must also show the intuitiveness of navigating through the scanning process and the listing process.

## Medium Task - Search an Item to purchase

### Introduction:

Searching for a product to purchase to an important element in the application. Without the ability to search for a product, consumers would not be able to match their needs and want from using the application. This task evaluates the applicant’s ability to allow both consumers and merchants to look up for products.

### Goal of the task:

Participants must be able to find the desired product they want in the application. Facilitators observing the participants must take note of the struggles and difficulties they faced while searching for a product and work towards improving the search engine system.

## Hard Task - List an Item onto the platform via scanning

### Introduction:

With Buixel, merchants can scan their products with our 3D scanning software. The scanned product will be available to preview where merchants can see how their products will be augmented from the consumer’s perspective.

### Goal of the task:

With the current instructions provided in the application, participants need to be able to scan their products successfully. This accesses the application’s ability to teach and guide users on our initial scanning process and how it can be further improved to better facilitate the scanning procedures.

## <User Signing In / Logging in>

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| Procedure The purpose of this task is to test the user’s ability to figure out the ways to log into our software. As different applications have different available options to log in. Doing this test will allow us to know what other available options can be used to log into applications and also the preferred method from our user base.  There were no demonstrations and instructions given to participants to access the application’s intuitiveness with the signup and login. | |
| **Participant Name** | **What were the issues that you encountered in the first task?** |
| Sun Ping | In the first task, I signed in through the google account. It detects my google account instantaneously and all I had to do was log in with a touch of my finger. I did not face many difficulties upon login into Buixel. |
| Corliss | I signed up for an account with Buixel as a first-time user. The instructions were clear and fairly simple for first timers to create an account. |
| Hidayat | I continue through the login with Facebook. It prompts me a notification to access my personal information like contacts, location, and camera. It enables users to edit information access before continuing with the Facebook account without any difficulties. |

## <Search an Item to purchase>

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| Procedure The purpose of this task is to test the user’s ability to search for an item that they are looking for using our software. Results that are shown from the search bar must be done well so that users can yield the results and find what they are looking for. By performing this test, it will allow us to know what needs to be improved on.  Participants were demonstrated that a user can search for a product or listing they desired on the application. No communication was allowed between the facilitators and participants to record the difficulties participants were facing during the process to improve upon the search system. | |
| **Participant Name** | **What were the issues that you encountered in the second task?** |
| Sun Ping | I was unable to check the seller’s profile page. If I want to see how trustworthy and reliable the seller is, I won’t be able to. |
| Corliss | When I was searching for a specific item, a lot of the items listed were not within my budget range and the condition was not good enough for me. A filter option for buyers looking for items should be included so it will be easier for us to find a specific item. |
| Hidayat | The home screen displays recommended items and the recent items on sale that allows users to search the item that they want to purchase from the home screen. |

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## <List an Item onto the platform via scanning>

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| **Procedure**  The purpose of this task is to test the user’s ability to scan a real-life object and turn it into a 3D model using our software. The unique feature of this software is that buyers are able to scan and inspect the 3D model to verify its shape, condition, and size. By performing this test, it will allow us to know how well the software is teaching new users on performing a 3D scan using this software.  A demonstration on scanning the product was shown, walking 360 degrees around the object to scan. Participants can ask questions to facilitators whenever they faced an issue with scanning and the facilitator needs to record the common struggles of all the participants to create a better instructional system for improvement. | |
| **Participant Name** | **What were the issues that you encountered in the third task?** |
| Sun Ping | There were not many instructions shown during scanning and I was unsure of what I was supposed to do. |
| Corliss | During the process of listing items to sell, I had trouble understanding if I can only upload 3D models, several pictures with no 3D models or I can upload both 3D models and pictures. |
| Hidayat | I had to exit the scanning page each time I wanted to rescan a product to perfection. An edit button can be provided to remove the unnecessary scans easily. |

# Results and Discussions 01

## Usability Problem

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| **Main Issues** | Overall Feedbacks | Severity Ratings |
| Listing UI | The user-friendliness of the listing function needs to be improved. | 10/10 |
| Filter Option | No filter option makes it hard for the users to find what they want. | 8/10 |
| Unable to View Seller Information | Users are not able to verify the seller’s profile when purchasing items. | 8/10 |

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Major usability problems in the evaluation consist of issues on the lack of user interface in the application. There were numerous times during evaluation, participants struggled for a long time to achieve what they wanted.

## Solutions

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| **Main Issues** | Solutions |
| Listing UI | Multiple testing will be done to improve the user-friendliness of the app. The goal is to have a few taps needed to perform a task. |
| Filter Option | For areas where many variations of options are present, we will be adding a filter button to allow users to select what they want to view. |
| Unable to View Seller Information | We will be adding chat messages and user profiles to allow users to view other sellers’ information. We will also be adding a verification tick to identify well-known sellers. |

Consolidating the feedback from our participants.

We have decided on the following features and functionalities to be implemented into the application.

* New activity screen page
  + Allows both consumers and merchants to keep themselves up to date with the special sales and events.
  + Observed account activities and changes to listings.
* Chatting Functionality
  + This is to facilitate communication between consumers and merchants
* Reducing the number of taps to reach a certain page
  + To reduce unnecessary pages and increase the efficiency of the application
* Filtering options
  + Users do need to struggle searching through the sea of listings to find the desired product they want.
  + Filter options range from but are not limited to prices, categories, sales, and ratings.
* Verification
  + To accommodate the new chatting system, we want our merchants and consumers to feel safe using our platform and that they are not dealing with potential scammers.
* Scanning instructions & Preview features
  + Scanning procedure will be streamlined to ease the process, reducing questions from merchants using the feature.
  + Preview features will allow merchants to augment their own products onto their environment to view it from a consumer’s perspective and make any necessary changes they deemed required.

The proposed added features are discussed through multiple sessions. Taking into the facilitators' and participants' perspectives and through observing the difficulties they faced when using the application.

# Evaluation Session 02

## Simple Task Description - Navigation to activity page

### Introduction:

The task is to evaluate participants’ ability to intuitively navigate into our activity page without demonstration or instructions from our facilitators. Observers are to take note of particular actions participants have taken in order to reach our activity page.

### Goal of the task:

Participants are to demonstrate they can successfully navigate onto the activity page without difficulties. The activity page is a common and important page for our users regardless of their purpose in using the application.

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## Medium Task Description - Chat functionality and filtering process

### Introduction:

With the implementation of social features, we want to evaluate the participants on how well they can communicate with their consumers or as a merchant. For consumers, we want to test their ability to quickly find products based on their individual needs and wants.

### Goal of the task:

Consumers must be able to achieve 2 objectives.

They are able to ask questions from a merchant according to their listings on information not stated in their descriptions and chat with fellow consumers.

They can filter products based on filter options presented to them. Using filters, consumers can quickly scope down and find their desired product efficiently and effectively.

## Hard Task Description - Scan and List

### Introduction:

AR Scanning is the main driving factor of the application. As such this evaluation is to assess the tutorial stages for scanning and listing products in the application. Examining the application’s visual instructions to guide the users to successfully scan any product they wish to sell and list them onto their profile.

### Goal of the task:

Participants, after observing the simple demonstration of scanning, need to follow the written instructions in the application combined with the visual tutorial to guide them into properly scanning a product and put up their own listings with detailed descriptions.

This is to simulate the role of a merchant and discover any flaws in the tutorial system that might confuse an individual during the scanning process.

## <Navigating to the activity page>

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| Procedure From our previous evaluation, participants have stated and requested a method to know about events, sales discounts, and their profile activity to keep up with consumers’ interest to provide a better service as a merchant. As such, an activity page was one of the proposed changes in the new implementation. We want the functionality of this feature to be intuitive hence the lack of demonstration and instructions.  Participants were not shown any demonstration and they are not allowed to communicate with our fellow facilitators for help during the evaluation of this task. As the activity page is a common and important page for our users regardless of their purpose in using the application. | |
| **Participant Name** | **What were the issues that you encountered in the first task?** |
| Sun Ping | I didn't face any issues navigating to the activity tap. The activity page was intuitive as it was easily found once we entered the application. |
| Corliss | The user interface between each of the buttons are too tightly packed. Spacing them out more will prevent me from clicking on the wrong buttons. |
| Hidayat | I find the user interface easy to use and understand. |

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## <Chat functionality and Filtering process>

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| Procedure As Participants are observed to be struggling with finding their items on previous evaluations. Most have indicated their interest in social features to communicate with their consumers or as a merchant.  For demonstration, we showcase a simple scenario showing a user finding their desired product with our new functionalities. The in-depth functionality of the feature was intentionally left out to evaluate our participant’s ability to use the chat and filter functionalities.  The purpose of the task is to explore the intuitiveness of the new features. The filtering process includes pricing, discounted sales, categories, and popularity of a listed item. Chatting allows participants to ask questions about the listed product such as the duration of the ownership and the possibility of a bargain deal with merchants. | |
| **Participant Name** | **What were the issues that you encountered in the second task?** |
| Sun Ping | The filter functionality was a good addition. Now I can find the products/listings I want easily. |
| Corliss | I really like the chat functionality added to the app. |
| Hidayat | I find it okay and easy to use. The application is similar to most shopping applications out in the market. |

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## <Scan Tutorial, Features, and List>

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| Procedure Collected feedback has suggested the scanning tutorial is not sufficient. Participants were struggling to properly scan their products and list them on their profiles. Instructions on the scanning procedure were not well documented hence resulting in our confused participant lost and inability to complete the scanning procedure.  Participants have indicated there were not enough options to properly preview their models after scanning which we have discovered to be a major issue that might discourage merchants due to the fact they were not able to properly view their preview models.  To facilitate the scanning procedure, our facilitators demonstrated the core factor when scanning the product which is walking around to take a 360-degree view of the scanned product. Participants were told to scan and list an item successfully on their profile without any further instructions or assistance provided.  Extra functionalities implemented into model previewing have been observed carefully to ensure merchant’s experience is not compensated due to the application’s limitations. | |
| **Participant Name** | **What were the issues that you encountered in the third task?** |
| Sun Ping | The scanning procedure is much easier to understand. I like the additional feedback on the scanning tutorial. |
| Corliss | I really like the new previewing functionality. It is much cleaner on the interface right now and I’m able to preview my model with more options available. |
| Hidayat | The scanning process is much improved now it is easier to use and I am clear what I am supposed to be doing to scan and list products. |

# Results and Discussions 02

## Usability Problem

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| --- | --- | --- |
| **Main Issues** | Overall Feedbacks | Severity Ratings |
| Product Listing Not Available | Pre-defined categories of product listing might not be suitable for a small number of items. | 5/10 |
| Chat Messages Limited | Chat messages are limited to 1 page. Would be good to have multiple pages for previous chats. | 7/10 |
| Scan Multiple Items | Scanning multiple items might take a long time. Would be good to have a feature to scan multiple products consecutively. | 5/10 |

## 

On this evaluation, we have observed the feedback to be general features of convenience. Participants do not find any major issues with the user interface of the application and are not observed to be struggling with the main aspects of a shopping application from either the consumer or merchant’s perspective.

## Solutions

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| **Main Issues** | Solutions |
| Product Listing Not Available | Update the app to pre-define more categories that are being searched by users in the database. |
| Chat Messages Limited | Add pages to the chat to allow for easier access to older messages. |
| Scan Multiple Items | Add a function to scan a new item immediately. |

With the main factors in Buixel covered without major negative feedback.

We will be focusing on features of convenience to allow our userbase a better quality of life when using the application.

The final implementations will include the following:

* Custom categories
  + Categories are not tied down to specific category present in the application
  + A wider spectrum of available category our userbase can search from.
* Unlimited Chat box
  + User will be able to see their chat history with past users with limited on how long ago the chat was.
  + User will self-determine if they want to keep a chat history or delete as and when they wish
* Scanning multiple items
  + To ease up on merchants with multiple product/listings.
  + After scanning an item, they have the option to immediately scan another product without going through the long process of clicking from other pages.

The final implementations will improve the quality of life in users and encourage other new users coming into the application and not turned away due to inconvenience or limitations from the application.