Assignment 3 – Facebook VR

CISC 325

Intro to Human-Computer Interaction
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Group 7

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VR Design Metaphor

The proposed design employs a room-based metaphor to organize the various features of the application. Each room consists of 4 walls that the user can interact with. The VR application organizes related subtasks using the room metaphor; however, most of the interactions occur with screens that resemble the screens that users are familiar with from a screen-based version of Facebook.

Screens were used for interaction, because our group determined that they offer a very efficient method of communicating information to the user. The only advantage that Virtual Reality offers in terms of the user's Facebook experience is the ability to organize related tasks spatially. This improved room-based organization aims to make the steps required to complete a subtask more intuitive.

Facebook tasks were organized throughout the four application rooms as follows:

Main Room:

- Browse timeline
- Jump to 'MyProfile Room'
- Search for people (Existing friends or new friends)
- Jump to 'Friend Room' or 'Non-Friend Room' from search results

Friend Room:

- Browse posts of friend's wall, and react to posts
- Post message to friend's wall
- Send message to friend
- View friend's profile picture and cover photo

Non-Friend Room:

- Browse posts on non-friend's wall if privacy permits
- Send friend request
- Continue searching for people
- View profile picture and cover photo

My Profile Room:

- Post to your timeline
- View notifications
- View profile picture and cover photo

Subtask Steps

The following sections describe the steps required to accomplish each of the key subtasks.

1. Find/Add a friend

- From the 'Main Room', search for the friend's name on the right wall
- Select the friend from the search results
- Click on the 'View Profile' button to jump to that friend's/non-friend's room
- In order to add the person as a friend, click the 'Add Friend' button on the front wall of their room

2. Post an update to your timeline

- From the 'Main Room', click on the 'View Your Profile' button on the left wall to jump to the 'MyProfile' room
- Select the 'Update Status' field on the front wall and enter the desired text
- Click 'Enter' to post the update

3. Post a message to someone else's timeline

- From the 'Main Room', search for the friend's name on the right wall
- Select the friend from the search results
- Click on the 'View Profile' button to jump to that friend's room
- Click on the message box on the front wall, and enter the desired message
- Click on the 'Post' button to post the message

4. Send a message to a friend

- From the 'Main Room', search for the friend's name on the right wall
- Select the friend from the search results
- Click on the 'View Profile' button to jump to that friend's room
- Click on the chat box on the right wall, and enter the desired message
- Click on the 'Send' button to post the message

5. Browse timeline

- From the 'Main Room', the timeline is displayed on the front wall
- Click the 'Scroll Up' and 'Scroll Down' buttons to scroll through other posts

6. Read a post by a friend

- From the 'Main Room', search for the friend's name on the right wall
- Select the friend from the search results
- Click on the 'View Profile' button to jump to that friend's room
- Posts by that friend will be displayed on the front wall, and can be scrolled by clicking on the 'Scroll Up' and 'Scroll Down' buttons

7. React to a post by a friend

- From the 'Main Room', react to posts on the front wall by clicking on the desired 'Reaction' button
- From the 'Friend Room', react to posts on the front wall by clicking on the desired 'Reaction' button

Design Changes

The final application closely resembled the design from the early sketches. The following changes were the most significant changes in the design:

1. **Gaze Select:** In the early design stages, it was proposed that the user be able to make selections or click buttons by gazing at them for a minimum time threshold. This interaction technique was rejected in favour of using a screen tap (via the Google Cardboard's button). It was decided that the time required to make a selection via gaze was too slow, compared to actively clicking, for it to offer significant value.

2. **Speech-to-text:** In the early design stages, voice recognition was identified as an important interaction technique for text entry. This feature was eliminated from the design based on the limited time frame for implementing the final design. It is still believed that voice input could be a valuable interaction technique for VR applications.

The overall design of the application, including the rooms and the distribution of tasks between them, remained relatively unchanged from the initial sketches to the final design. See Appendix A for a visual comparison of the early design sketches and the final design.

Final List of Interaction Techniques

Cursor Navigation

While the user glances around the virtual environment, the reticle in the middle of the screen acts as a cursor to select items or click on buttons. The reticle “expands” on areas that are clickable as a visual indicator to the user. The change in reticle size is shown in Figure 1, below.

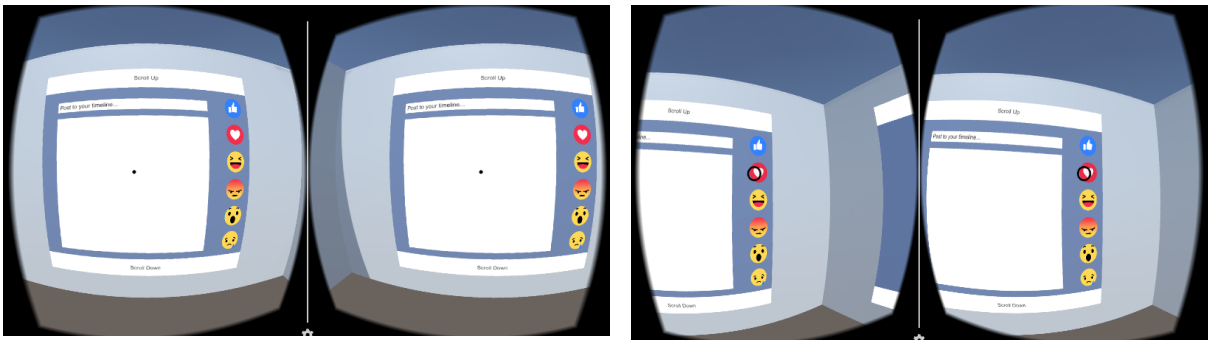

Figure 1: Change in reticle size over 'clickable' buttons.

In order to 'click' on a button, the user must tap on the phone screen by clicking on the Google Cardboard's built-in button. This input method was selected based on its speed advantage over alternatives such as a timed gaze selection method.

On-screen Keyboard

Text entry is achieved through a 3D keyboard that appears whenever a textbox is clicked. Interacting with the keyboard is done via cursor navigation and the physical Google Cardboard button. The keyboard is shown in Figure 2. Slow text entry is known limitation of this application, as clearly, the on-screen keyboard is much slower than a standard keyboard.

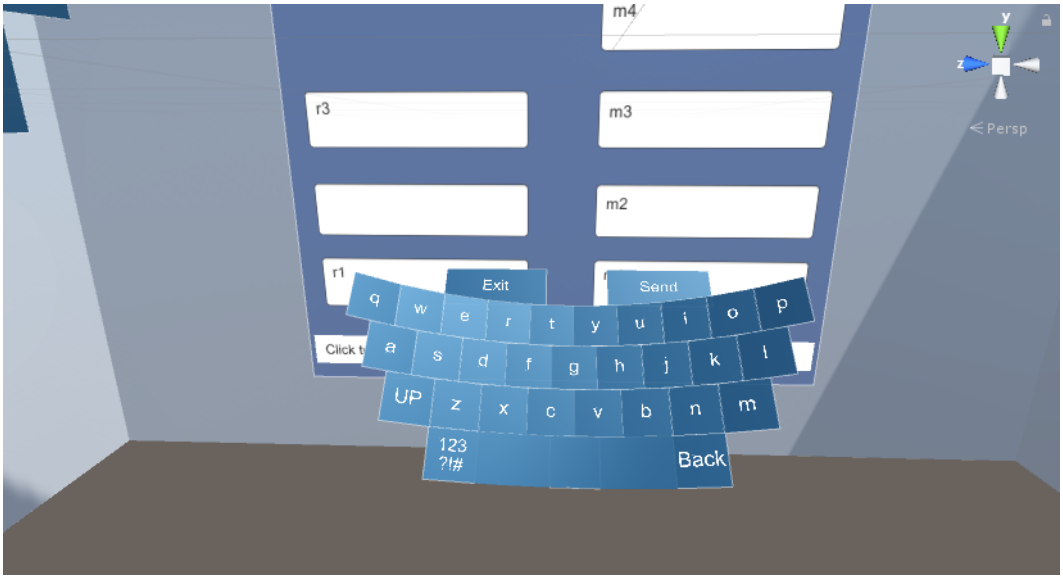

Figure 2: Keyboard used for text entry.

Facebook API

The Facebook Unity SDK was used to pull live content from Facebook while the application was running. Due to time constraints, the Facebook API was only harnessed for the user's profile picture, cover photo, user name, and personal details. All other data was static for the purpose of prototyping the final design. The submitted Android application file has the Facebook API functionality removed for marking convenience, because it requires an application key and an access token. The Facebook API access code can still be found in the submitted source code.

Appendix A

Main Room

The *Main Room* sketch and the actual implementation did not differ. The Subtask of scrolling through the newsfeed by looking up/down, and the searching via text input remain unchanged from the sketch.

Figure 3: Main room initial sketch.

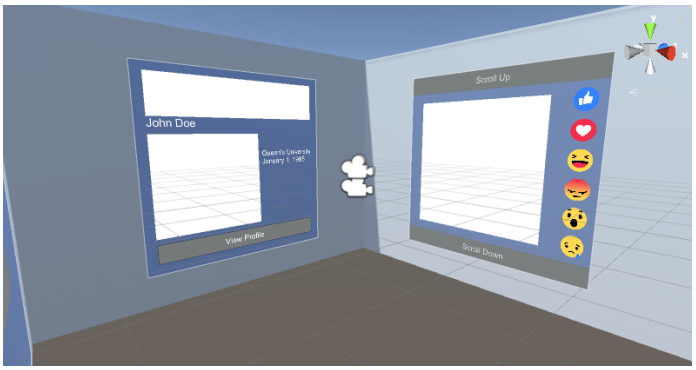

Figure 4: Main room final design.

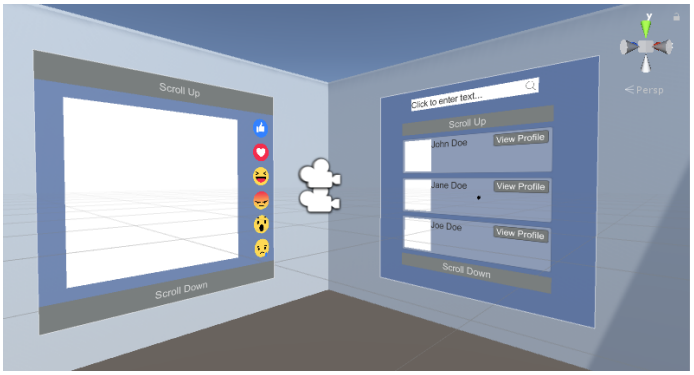

Figure 5: Main room final design.

Friend Room

The *Friend Room* implementation and design did not differ from the sketch.

Figure 6: Friend Room initial sketch.

Figure 7: Friend room final design.

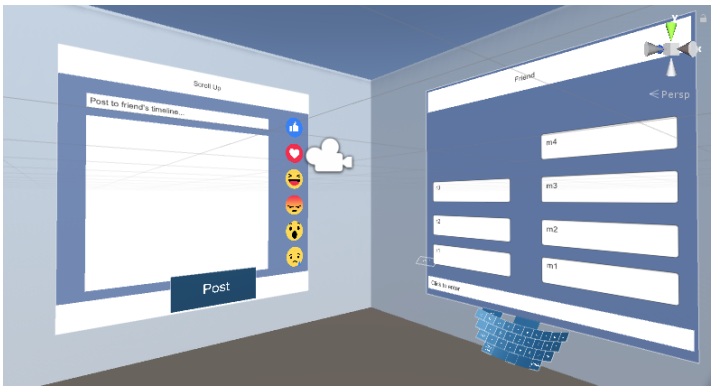

Figure 8: Friend room final design.

Non-Friend Room

Figure 9: Non-Friend room initial sketch.

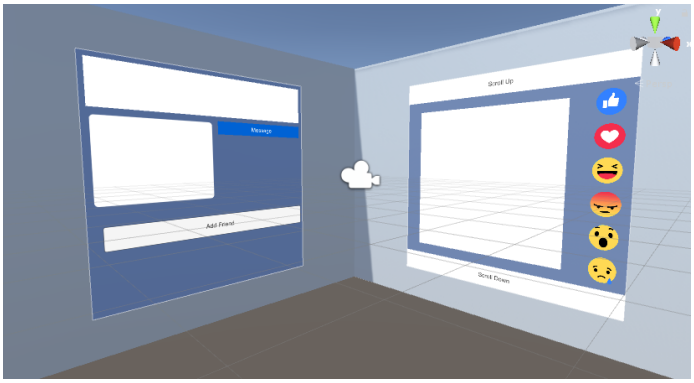

Figure 10: Non-Friend room final design.

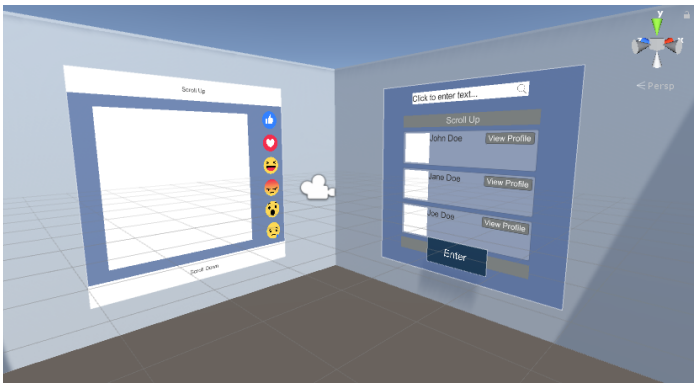

Figure 11: Non-Friend room final design.

MyProfile Room

Figure 12: MyProfile room initial sketch.

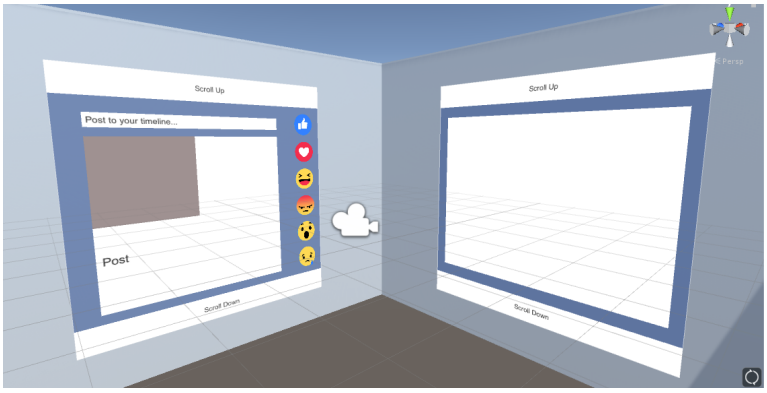

Figure 13: MyProfile room final design.

Figure 14: MyProfile room final design.