CMPE 496 FINAL PROJECT

BUTTON BOBLE GAME

Oğuz Arslan – 2017405180

Ufuk Arslan – 2017400219

Introduction

For this project, a video game is designed with the rules of HCI implemented in the aspects of the game. The name of the game is “Button Boble”. Unity game engine is used for creating GUI and the game is created fully in 2D. The game is made for Android devices, and it can be played after the .apk file is installed. It is solely played in portrait mode, i.e., holding the device in vertical alignment. For the coding, the C# programming language is used. The graphics in the game is designed using Adobe Photoshop and audio is gathered from free-to-use online resources.

Definition of the Game

The name of the game is chosen to be Button Boble since the game is mainly about pressing buttons and the buttons pop like bubbles when pressed. Button Boble is mainly a fast-paced button clicker where the player clicks on buttons that appear randomly to gain points in a limited time. At the end of each session, the final score is evaluated for the high scores. The game is built with 4 different scenes. These are, “Main Menu”, “Gameplay”, “Post-Gameplay”, and “Leaderboard”. For a better understanding of the game, its features, and the rules, the gameplay scene is mentioned first in this report.

Gameplay

After the player decides to start a gameplay session, the first thing the player sees is shown in “Figure 1”, below that is the explanation of every aspect of the gameplay scene, “Figure 2”. The timer starts as the player presses the red button which is the main button named “Boble”. Boble is basically the main character throughout the gameplay, and it is a button. Every time Boble is pressed, the score increases by 1, and the time increase by 1 second. After Boble is pressed, Boble is immediately sent to a random location inside the

“Gameplay Area” which is the square dark space at the bottom of the screen. When the time reaches zero, the game is declared done and the final score is presented on the post-gameplay screen, which will be explained later. Every time Boble is pressed, a click sound is played, giving reinforcement to the player with a sound queue.

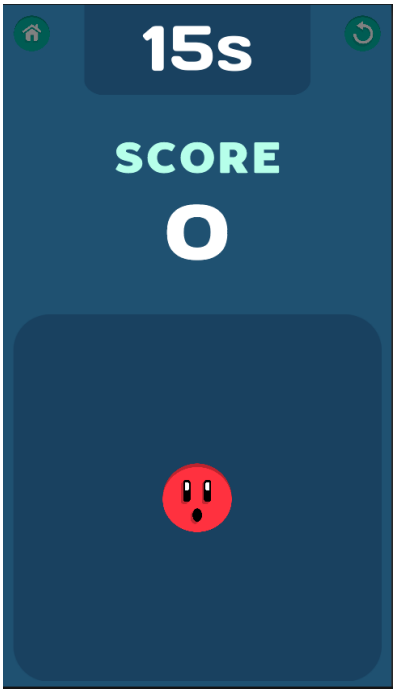

Figure 1, Starting of the gameplay scene

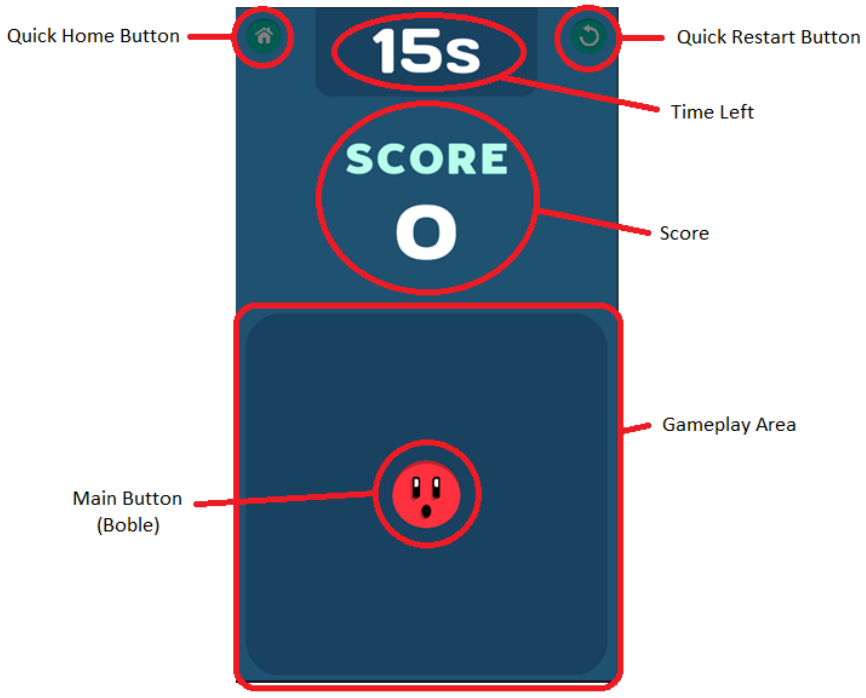

Figure 2, Gameplay scene with indications

Special Buttons

In the game, there are also 3 different special buttons that pop up at random times with respect to a complicated algorithm working behind. These are, the “Bonus Time Button” (BTB), “Golden Bonus Time Button” (GBTB), and “Mega Button” (MB) shown in “Figure 3” from left to right respectively. Note that these special buttons stay in the field for short time, and they disappear if not pressed in time. The dark section revolves around the special button and once the button is fully dark, the button disappears. This is a visualization of the sense of time for the player. The time span for the buttons to stay in the field gets smaller as the game progresses, making them harder to press in time, hence making the game more difficult.

Figure 3, Special buttons

The default special button BTB is the most common to come by and it takes longer than the other two to disappear. It gives 3 seconds of extra time while giving 1 extra score.

The next level of BTB is the gold version, GBTB, which is harder to find. It gives 5 seconds extra while giving 1 extra score.

Lastly, there is the mega button which is the hardest to come by. What the mega button does is that it makes Boble two times bigger for 5 seconds while granting extra 4 seconds and 1 extra score. Bigger Boble is easier to press. The big Boble can be seen in “Figure 4”.

All the special buttons play different sounds, the BTB plays a “bling” sound after it is pressed, and the GBTB plays a similar sound but repeats it 3 times, making it sound more important, which is true. The MB has two different sound effects, the first is played when the button is pressed and Boble gets big, representing growth. And the second is played after Boble goes back to its normal size, this sound is literally the reverse pitch of the growing sound, which works perfectly for representing shrinking.

There are also other queues to increase the learnability of what the special buttons do to time. Those are, after the special button is clicked, an animation with “+3”, “+4”, and “+5”

texts play at the location of the button pressed, and the time left turns into the color of the special button pressed for a brief time, which can be seen in “Figure 4”.

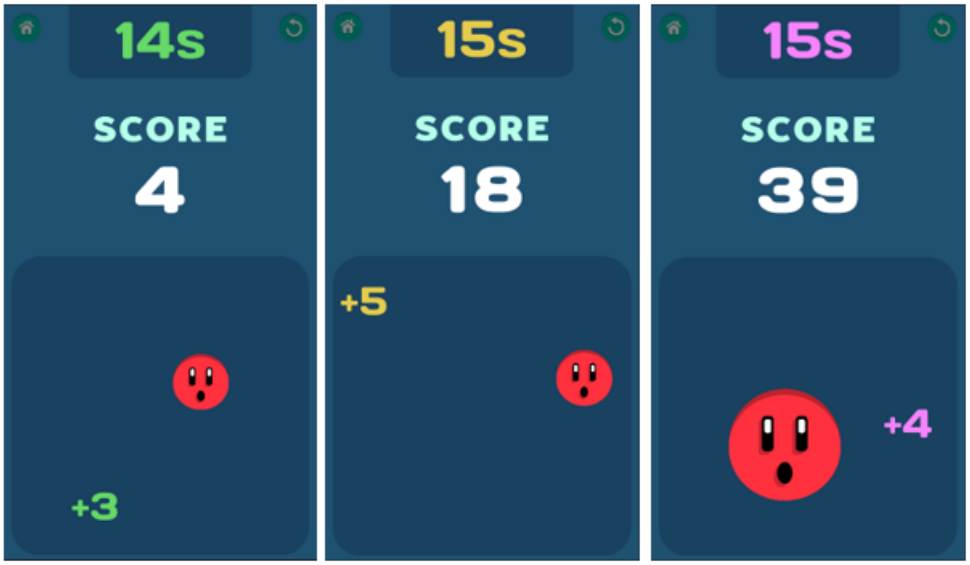

Figure 4, The visual effects after special buttons are pressed

Mistake Button

The game would not have made sense if the player went through and clicked everywhere on the screen as fast as possible and had not been punished by it. In the end, the game requires the player to click in the correct spot as quickly as possible. So, a big invisible button is added that covers all the Gameplay Area and it is called the “Invisible Mistake Button” (IMB).

When the IMB is pressed, 1 point is subtracted from the total score. To tell that the player made a mistake, three different actions are made. First, the score turns red for a brief time, as shown in “Figure 5”. An audio indicating something wrong happened plays, and the device is commanded to vibrate. All these increase the responsiveness of the game. Note that for creating no issues with beginners, the total score can not go lower than 0.

Figure 5, Score turning red after IMB is pressed

Quick Transition Buttons

In “Figure 2” there are two small buttons placed on the top of the screen. The “Quick Home Button” (QHB) and the “Quick Restart Button” (QRB). These buttons are made smaller than usual, placed in a harder place to reach, and require two taps for them to function. The reason for that is, that nobody wants to accidentally press a button that ends their whole run. How the buttons work is that the buttons start inactive (dark-colored) in the beginning and once one of these buttons is pressed, the button pressed gets into an active state and turns brighter, indicating that it is ready to do the action shown in their image once pressed again. There is also another safety measure that ensures no accident happens. Once another button is pressed when one of the quick transition buttons is active, the quick transition button turns inactive. The visualization of this can be seen in “Figure 6”. The presence of these buttons provides quick actions for the player to restart or go to the main menu if they desire so that they do not have to wait for the game to finish if they want to do these actions.

Figure 6, Active QHB and inactive QRB

Post-Gameplay

After the time runs up and the game ends, a post-gameplay panel pops up. This panel appears in two different forms depending on whether the final score is worthy of going into the top-5 local leaderboard. If the final score is not worthy, the panel appears as the left picture in “Figure 7”, where there is information about the final score of the run, the highest score achieved, and two buttons that take the player to the main menu or starts another run. The restart button is bigger to increase its clickability. The image in the middle of the figure shows up when the final score is in top-5, and it requires the player to give his/her name via a text input field so that the name of the record holders is present. After the name is written and clicked on the tick on the right side, saved info appears. Players should not worry though, because the name information is still saved if the tick is not pressed, and the game is restarted or turned into the main menu. The saved info appears when transitioning between scenes and the screen fades to black in around 1 second.

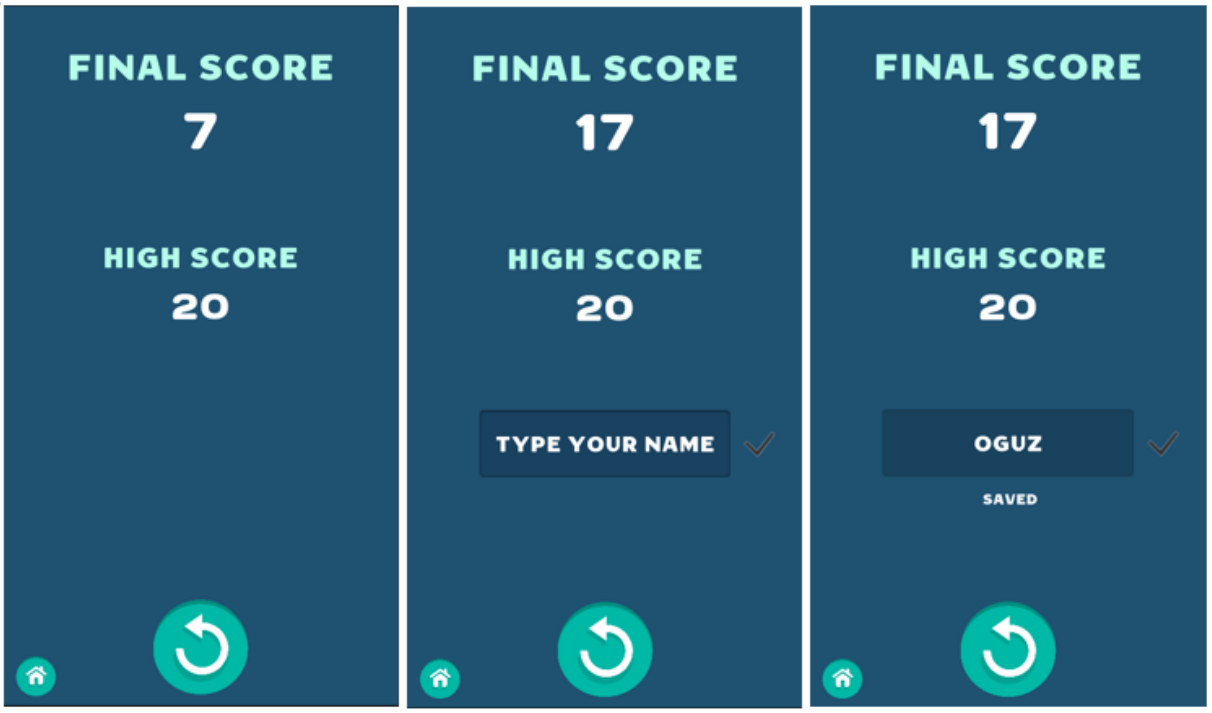

Figure 7, Post-gameplay panels

Main Menu

When the game is opened, the first thing player sees is the main menu. The main menu can be seen on the left side of "Figure 8". In the main menu, there is information that the player can see which are the title and the high score, and some buttons the player can press. These buttons are located on the bottom and on the left, there is a Leaderboard Button which takes the player to the Leaderboard Scene. In the middle, there is a Play button which is made big to make it easier to press and increase its importance in the player's eyes. On the right, there is the Settings Button which when pressed, pops up 3 different setting buttons which can be turned on and off. These options are, "Device Vibration", "Sound Effects", and "Music" and when they are turned off, a red dash appears on them showing clear visibility. The ability to set these options serves to customizability, giving the player a way to experience the game with different settings they choose. Also, the icons of the buttons are intuitional to use and globally understandable. Here, if looked closely, the art style of all the buttons is the same with a shade on the upper side, making it look more like a button. This provides consistency inside the UI.

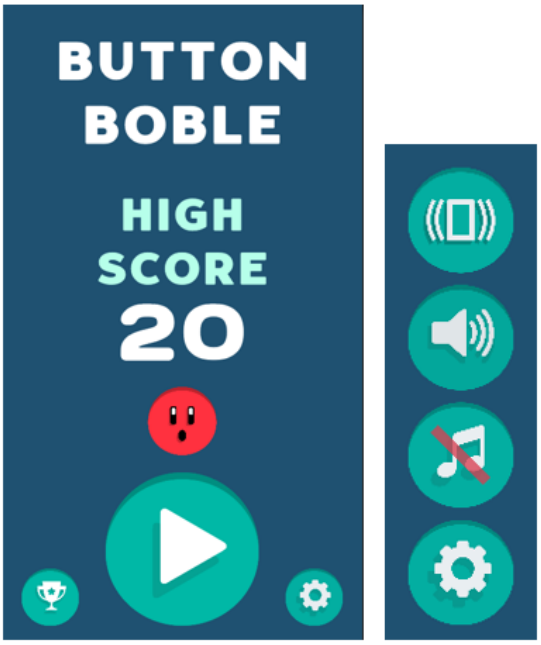

Figure 8, Main menu and settings

Leaderboard

The leaderboard scene is straightforward, the top-5 scores are showcased with the names of the players who got these scores. “Figure 9” shows an example of the leaderboard. Here, there are again two buttons, the small one on the left takes the player back to where they came from, which is the main menu. Also, the play button is again bigger and easier to press.

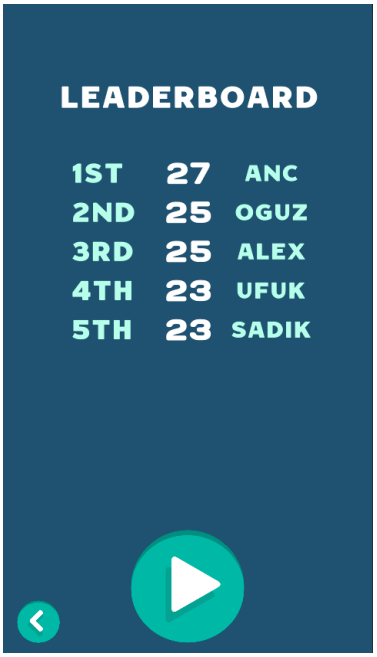

Figure 9, Leaderboard scene

Conclusion

In conclusion, the Button Boble Game is a game that has many HCI elements embedded within it. It is highly recommended to install the game to your Android device and try the game out for yourselves for understanding the concepts while interacting with the application. Note that the gameplay is created for various screen resolutions and can be played in any aspect ratio. However, the game is mainly created for aspect ratios like 16:9 and 18:9 and it works perfectly in those ratios just like on most mobile phones.

In this project, there were several challenges that I would like to discuss. First, while it was not extremely hard to implement the basics of the Button Game concept, after the special buttons come into play, the difficulty of developing the mechanics increases drastically. This is because we don’t want two buttons to coincide with each other at any given time. The introduction of the Mega Button creates an extra challenge since we do not want to spawn a Mega Button when Boble is on the edges. Because we do not want Boble to run over outside the Gameplay Area borders.