LAURA OGBA & TIANLE SHU- STUDENT

Project for Gesture Based

UI Development

Contents

[**Purpose of the application** 2](#_Toc5883936)

[**What Is Myo-armband?** 2](#_Toc5883937)

**Purpose of the application**

The application my group partner and I have decided to design is a classic game called ‘Brick Breaker’. Brick Breaker (platformer) is a Breakout clone in which the player must smash a wall of bricks by deflecting a bouncing ball with a paddle. The paddle may move horizontally and is controlled with the BlackBerry's trackwheel, the computer's mouse or the touch of a finger (in the case of touchscreen). When all the bricks have been destroyed, the player advances to a new level. There are 34 levels. There are many versions of brick breaker, some in which you can shoot flaming fireballs or play with more than one ball if the player gets a power up.

As the purpose of the game is to have User Interface gestures, we incorporated this into the game. Originally, the game is controlled using the basic mouse and keyboard to control the paddle board in the game. The ball that breaks the bricks is also controlled by the space bar in the game. We changed this into a gestures game to allow a device called myo-armband to control the game.

This game was developed through unity, which is the ultimate game development platform. This platform is used to develop 2 and 3 dimensional games. Our game was develop using 2D. once the game was developed, the next step was to connect myo-armband to unity. This was done using the myo-SDK which can be found online at the MYO website (please find link in our git repository). This package is then imported into unity and then you can follow the steps of synching the armband to your machine, through a Bluetooth that comes with the band.

The first steps to controlling the game, is to ensure that the armband is worn on the arm and is then synchronised with the

## **What Is Myo-armband?**

The Myo-armband is a gesture recognition device worn on the forearm and manufactured by Thalmic Labs. The Myo-armband enables the user to control technology wirelessly using various hand motions. It uses a set of electromyographic (EMG) sensors that sense electrical activity in the forearm muscles, combined with a gyroscope, accelerometer and magnetometer to recognize gestures. The Myo-armband can be used to control video games, presentations, music and visual entertainment. It differs from the Leap Motion device as it is worn rather than a 3D array of cameras that sense motion in the environment.

e– design of the application including the screens of the user interface and how it works. The application can be an experimentation process for you, testing how pieces of hardware could interact or be combined with gestures. You don’t have to solve the world economic crisis just yet.

**Gestures identified as appropriate for this application** – consider how gestures can be incorporated into the application, providing a justification for the ones that you pick. This is an important research element for the project and needs to explain how the gestures fit into the solution you are creating.

**Hardware used in creating the application** – You are not limited to the hardware listed above. If you have your own hardware, or hardware simulator that you wish to use, then feel free. The purpose of each piece of hardware should be given with a comparison to other options available.

**Architecture for the solution** – the full architecture for the solution, including the class diagrams, any data models, communications and distributed elements that you are creating. The architecture must make sense when the gestures and the hardware are combined. Justification is necessary in the documentation for this. You need to include a list of relevant libraries that you used in the project.

**Conclusions & Recommendations** – Conclusions are what you have learned from this project and the associated research. Recommendations are what you would do differently if you were to undertake the project again. The Reflective Piece – what I learned and “enjoyed”! This gives scope for a critical evaluation of the project and the objective that you tried to achieve.