Graphical User Interface Report

The User Interface is a key feature of our game as it is the primary method of displaying information to the user. The graphics need to be aesthetically pleasing (Req 3.08) so the game is enjoyable to look at, while also providing the user with necessary information.

Our GUI is crucial to fulfilling several of the core requirements. To ensure we satisfy these requirements we researched [1][2] what an effective GUI should consider according to design experts and companies. We produced a list of several properties of good interface design that support usability and playability, which we should acknowledge during the design process. They are briefly defined as follows: Intuitive - using concepts that are familiar to the user, Clarity - the user should be well-informed, Familiarity - using familiar concepts to the user, Flexibility - designing something that looks good in all situations. We also considered how the user interacts with the GUI and research into it [3][4]. We found the key points of interaction design include the peripherals available to the user (Req 3.01), aesthetic experience (Req 3.08), learnability and usability (Req 3.07).

Our inspiration and research for the graphical style of the game can be found in the design document *(see 'design_document' document)* and the paper prototypes *(see 'paper_prototype' document)* are available to show our initial plans. Annotated figures of the implemented GUI are available *(see 'GUI_Figures' document)* and will be referenced throughout this document.

The Main Menu (Fig. 1) is the first screen the player encounters, so we ensured the location of the game, the University of York, and the theme of Science Fiction was immediately obvious (Req 2.01), while also hinting at the storyline. Our choice of artwork succinctly presents these details to the user and keeps with our aesthetic (Req 3.08). The buttons on this screen are aligned in the centre for clarity, and allow the user to choose to 'Play' or 'Quit' the game using the mouse. We believe these are sufficient options, as they are common in other RPG games, so are familiar, and will be intuitive for those who have less experience (Req 3.06). We also thought adding buttons such as 'Settings' would be unnecessary at this point in the project as there is few aspects of the game that are changeable by the user. Currently, a previous game cannot be loaded, as our timeline hasn't allowed this feature to be implemented, but when it is in place we have ensured 'Load Game' and 'New Game' buttons can be added to this screen fluently (Req 2.12). We have also recommended a 'How to play' screen for future implementation, but this information is currently covered in the user manual (link: user manual).

The World Map (Fig. 2) allows the user to select a level to play (Req 2.06) and shows their progress in the game. This screen of the GUI is a type of menu showing the university campus (Req 2.01), where the user can select a level. However, to coincide with the storyline and progression of the game, certain levels will not be made available until they are 'unlocked' by completing other levels (Req 2.10, 2.01). This is represented in the GUI by the button colours: green for unlocked, grey for locked. We believed this design aligned with usability as it is intuitive and familiar for the user, due to its use in many similar games and other general GUI's (Req 3.06). To move around the map, the user can use the 'wasd' keys on their keyboard or click and drag using their mouse. We also made use of a loading screen here (Fig. 3), that consists of a simple piece of text for clarity, keeping the user informed by making the system status visible.

Each of the levels is based in a unique location, coinciding with the departments on campus (Req 2.01). The user must be able to move around each environment intuitively (Req 3.07) and with familiar controls (Req 3.06). We used concepts such as side-scrolling, parallax and 2.5D view which create a sense familiarity, but when combined with the graphics produces a unique level of immersion and adds to the game's playability. We wanted to keep the GUI in the levels very simple, so as not to distract from the gameplay, but we ensured that the relevant information was made available, such as health (Req 2.07.5) and ammunition during combat.

For the combat mode (Fig, 4)(Req 2.07), the GUI had to be intuitive, familiar and playable. Our GUI shows the enemy being battled and the current character, and uses a Heads Up Display (HUD) that shows the character and enemy health (Req 2.07.5) and ammunition status. These bars offers an intuitive and clear indication of the player's current health, as is standard in many platformer games, providing familiarity. The user interacts with the combat mode through keyboard keys, which are outlined in the user manual. To allow a wide range of attacks, each character has different weapons and attack ranges, accessed by switching characters (Req 2.4.1).

The Character switching GUI (Fig. 5) is an intuitive selection screen, that allows the user to select the character they wish to play by using their mouse, or the 1-6 number keys on their keyboard corresponding to the six characters. It consists of six buttons with the image of the six characters shown to enforce familiarity and clarity. The change in character is also shown on the screen in real-time to provide clarity and keep the user informed (Req 2.04, 2.05). This screen is opened and closed using 'tab' key, which is simple and easy to remember.

The pause screen (Fig. 6) is used to pause gameplay and is opened and closed by pressing the 'esc' key on the keyboard, which is intuitive, easy to remember and easy to perform. It also has a 'continue' and 'exit' button which are intuitive and familiar choices for any user, and are selectable through use of the mouse.

Bibliography

[1] J. Nielsen (2013, Jul, 11) *10 Usability Heuristics for User Interface Design* [Online] Available: http://www.designprinciplesftw.com/collections/10-usability-heuristics-for-user-interface-design

[2] Jane Portman (2016, Feb, 16) *The core principles of UI design* [Online] Available: https://www.invisionapp.com/blog/core-principles-of-ui-design/

[3] L. Alben "Defining the criteria for effective interaction design" AlbenDesign.com [Online] 1996. Available: https://s3.amazonaws.com/academia.edu.documents/36676114/Quality_of_Experience.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1516551369&Signature=6Gh3EvGHAJXOyIhKGykCZbXdv6c%3D&response-content-disposition=inline%3B%20filename%3DQuality_of_experience_defining_the_crite.pdf

[4] T. Siang (2018, Jan, 14) *What is interaction Design?* [Online] Available: https://www.interaction-design.org/literature/article/what-is-interaction-design