Usability Analysis

COMP140 - Usability Analysis

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May 15, 2016

1 Introduction

This report will analyse the COMP140 hardware hacking controller using the heuristic analysis method suggested by Nielsen [1].

2 Heuristics

The heuristics that were used were designed by Nielsen:

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use

- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover from errors
- Help and documentation [2]

However, Nielsen's heuristics are not specific to games. Pinelle *et al* has designed heuristics that are game specific. The heuristics used here are relating to game controls such as clumsy input scheme and command sequences being too complex [3].

3 The Controller

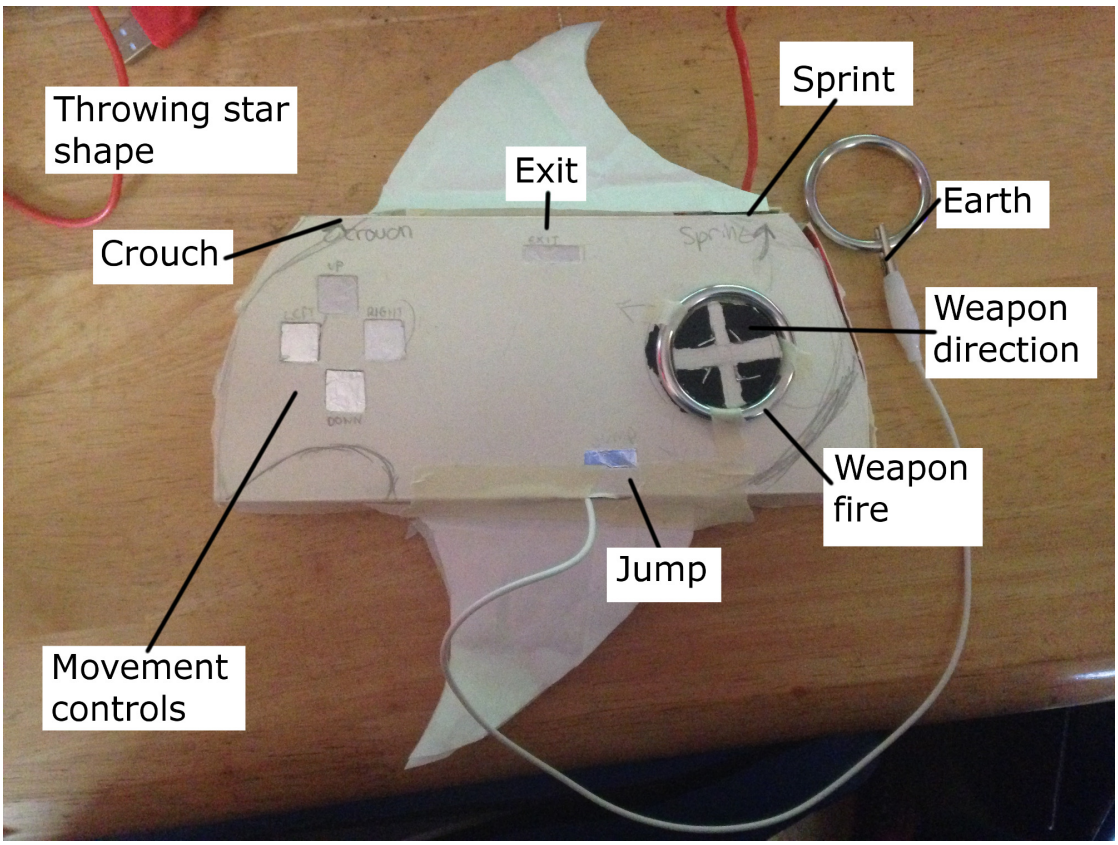

Figure 1: The controller.

Figure 1 shows the controller, it is shaped like a throwing star to fit the theme of the

game it was designed for. It is designed for younger children that are more likely to be interested in different shaped controllers.

4 Two Improvements

4.1 Aesthetic and Minimalist Design

The first issue with the controller is the aesthetic and minimalist design. The shape means that one side will be shaped similarity to a controller such as the PS4 controller, this side should be easy to grip and use. However, the other side curves upwards and may be hard to grip. This may lead to the buttons on that side of the controlled being harder to use. Also the change in shape may mean that the controller is uncomfortable to use for extend periods of use. A possible improvement could be to alter the shape of the controller to give it two hand grips.

Figure 2 shows a possible alternate design that has two hand grips making it easier to hold. The throwing star shape is also removable meaning it can be taken off if it is causing discomfort. This also allows for alternate shapes to be attached to the controller for use with other games.

4.2 Visibility of System Status

Another issue is the visibility of system status, the controller should inform the user of the system status. Currently there is no indicator as to whether the controller is functioning correctly. The MakeyMakey kit has an LED to indicate whether it is powered on, the controller casing could be adapted to make this LED visible to the user. The MakeyMakey also has the functionality to add another LED that will flash when a button is pressed. An LED could be added to the controller to test whether the buttons are all functional. These two improvements will inform the user of the system status.

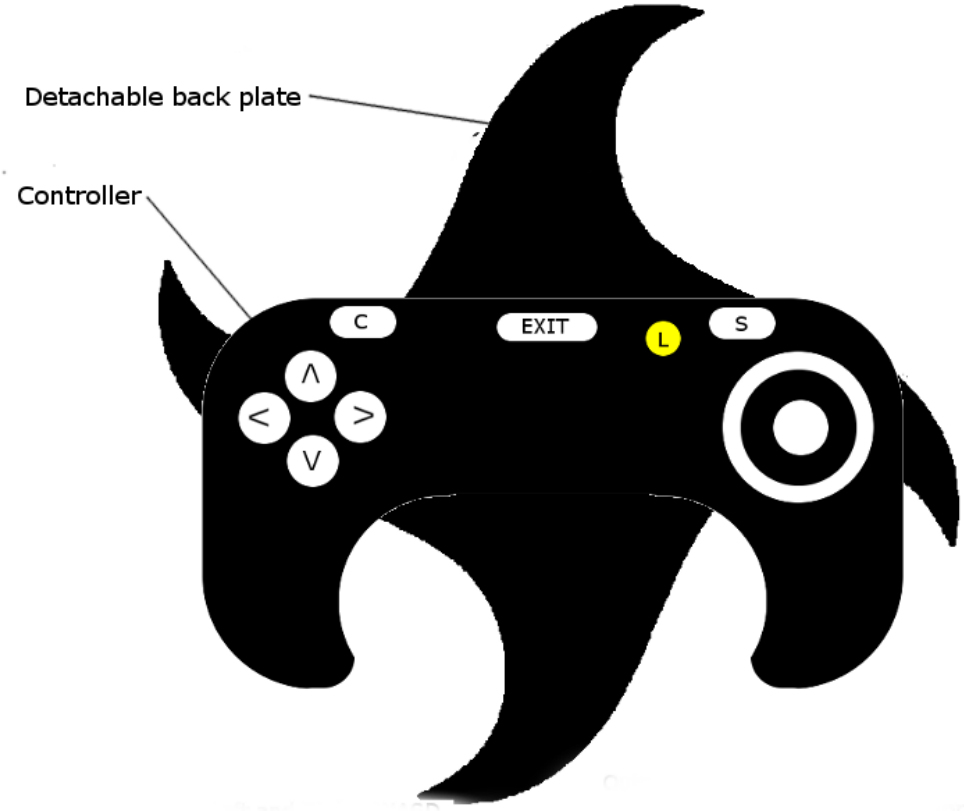

Figure 2: Potential improved design .

5 Conclusion

Nielsen says that it is difficult for an individual to find all the usability issues [1]. Therefore, there are likely to be more issues with the controller that would be found if it was analysed by more people. However, making the two improvements suggested will improve the usability of the controller.

References

[1] J. Nielsen, "How to conduct a heuristic evaluation [online] at (https://www.nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/) accessed on 7 may 2016," 1995.

[2] J. Nielsen, "10 usability heuristics for user interface design [online] at (https://www.nngroup.com/articles/ten-usability-heuristics/) accessed on 6 may 2016," 1995.

[3] D. Pinelle, N. Wong, and T. Stach, "Heuristic evaluation for games: Usability principles for video game design," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '08, (New York, NY, USA), pp. 1453–1462, ACM, 2008.