

# Designing a Game Controller for Novice HALO3 Players

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**Abstract.** This paper describes the process of designing and developing an intuitive controller that helps lower the threshold for novice gamers to play Halo 3. To help novices to master the controller, most controls have been replaced with rich and meaningful interaction. To help novices understand the game, extra feedback channels have been added to reinforce information given onscreen so critical information is not missed.

**Keywords:** Game Controller, HALO3, XBOX 360, and Product Design

## 1 Introduction

The most important objective of this project is to lower the threshold for novices to play games. While the design of the current XBOX 360 controller is not difficult for novices to hold, the controls (buttons, joysticks) require a lot of training to master them, which is often good enough reason for novices to stay away from the XBOX 360. We are also concerned with providing some guidance for novice players. The result of all this is consisting of two controllers, one for each hand, providing the user with more freedom. These controllers are equal in level of importance, sharing the same design and dividing the controls as evenly as possible. In the redesign of the controller, we are focusing on some key feedback given to players (see the work of Paras (2006) in this area).

## 2 Aiming

Aiming has specifically received a lot of attention. It is done by changing the angle of your head and turning around your axis. We have implemented a control that combines the strengths of the joystick (relative control) and the mouse (absolute control).

To give a more natural link between the control and the activity (aiming), a slider, equipped with force sensing resistors (FSRs) is used. By sliding the slider with the thumb the angle of the characters head is determined in an absolute way. By applying

force with that same thumb, either to the right or the left of the middle, the acceleration by which the character turns around his axis is determined in a relative way. We have evaluated our design with user tests, focusing on the novelty of our design and how easy can one learn to use the controller. We asked 18 students at Industrial Design to use three devices in random order to perform a targeting task on a computer display. Figure 1 shows the improvement of the scores (means) for the left and right hands for the three devices: Joystick (1), Mouse (2), Combined Controller (3) after 5 repeated sessions with each device. While for the left hand, the Mouse is the best improver, for the right hand it is our combined controller that has the best improvement.

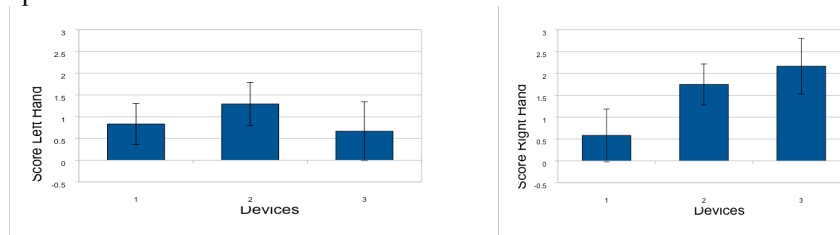


Fig.1 Score improvement (means) for Joystick (1), Mouse (2) and combined controller (3)

## 4 Conclusion

We have designed, developed and integrated several original controls and coupled interactions within our controller. Novices should have less difficulty in understanding the game mechanics and more fun playing Halo 3. Our design lets gamers control the Halo 3 character without having to displace his/her fingers and thumbs. The device has controls and interactions that are linked more naturally to the outcomes in game and placed more logically. Furthermore, the guidance in the controller enforces the information given on screen. The reloading prompt, enacted by the dropping of part of the controller, is very strong. It is also a combination with the reload control.

## 5 References

Paras, S.P. (2006) Learning to Play: The Design of In-Game Training to Enhance Videogame Experience. 2006. PhD thesis. Simon Fraser University Surrey.