

Critique of an Everyday Device

by Mason Nixon

CS 6750 Assignment 1

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a) The device I have chosen is the Wii gaming console remote controller, or wiimote. The wiimote is used to give the user the ability to manipulate and control characters or actions on their television screen via the Wii gaming console or some other independent medium. The first few things that come to mind when thinking of how good the device works is the haptic feedback, the accuracy of motion detection, and the range of motion captured. These features allow the user to be abundantly aware of whether they are using the wiimote correctly or not. When I think of the shortcomings, I think of the small size and the layout of the buttons. This makes it difficult to access each individual feature.

b) The usability goals for this device seem to be: effective to use (effectiveness), having good utility, easy to learn (learnability), and easy to remember how to use (memorability). The device must be effective to use as a controller for a game otherwise the user could become frustrated not enjoy playing. The device must have good utility, i.e. the wiimote must perform its function in a practical way. Since children and people of all ages and skill levels could be a user of the wiimote, it must be easy to learn how to use. There are only 9 buttons (with only 3 used for primary functions), and the user may also physically move the controller around as well. Also, it must be easy to remember how to use the wiimote.

c) Clearly, considering the broad demographic, ease of use seems to be the most critical of these goals. To enhance the appeal to children, the wiimote should engage them. If a child picks up the wiimote, it should immediately be clear how to operate the controller.

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Also, since this is a game console, the intent is to provide for entertainment. Therefore, the user must not be overwhelmed with features and functions. People will be more inclined to use the game if it is not overly complicated and can be picked up relatively easily.

d) Although important to the design of the wiimote, having good utility seems to be the least important goal. As long as the wiimote performs its functions effectively, its practicality is less important. The more advanced features may be carried out on the Wii game console or any other compatible platform with the wiimote rather than performing these functions on the wiimote itself.

e) When it comes to visibility, the wiimote is lacking in only two areas. The *B* button, or trigger, is placed on the underside of the wiimote. Although this conceals the button from sight, the button is found through the natural way one holds the controller. The second area is cursor movement when using the wiimote with the Wii game console. One must wave the controller around in the direction that the cursor is desired to go. The wiimote offers three different kinds of feedback for the user. The first is related to the movement just described. When one waves the controller, the cursor moves on the screen to indicate whether the appropriate action has been taken. A second type of feedback is based on tactile sensing. If, for instance, one is playing a golf game, when the user strikes the golf ball on the screen, a vibration is felt to signify that contact was made on the virtual golf ball. The last type of feedback is auditory. There is a small speaker on the wiimote to provide an additional means of communicating with the user. One type of constraint on

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the wiimote is the plug used for attachments. It has a unique shape, where only one orientation of the cable is possible to plug it in. When speaking of consistency, the controller offers only 9 buttons, each of which with separate labels and unique functions. There are arrow keys, a power button, an *A* button and a *B* button, a *1* and a *2* button, a home button, and plus and minus buttons. There is also redundancy in that one may also use arrow buttons to perform the same actions as waving the controller to move the cursor. When it comes to affordance, the buttons all obviously afford pushing, and the *B* button in particular affords pulling as it fits onto the finger as a trigger mechanism.

f) If the utility of the trigger button would be preferable to maintain, a possible improvements for visibility in the case of the *B* trigger would be to include a diagram on screen that indicates where the button is located when it is needed. Feedback on the wiimote is very robust and well-developed with little need for improvement. A possible constraint that would assist the user in correctly operating the controller could be added in the form of a tactile response. For instance, if the user presses the incorrect button, then a vibration could alert the user to the error. There does not seem to be any real issue with consistency on the wiimote. The arrow button, although it seems to have an innate function based on its shape, could offer more affordance. Having printed arrows on the key to indicate that each of its four sides represents a direction could assist children who may be unfamiliar with this function that may be taken for granted by more experienced users.