Wiimote-Controlled *Snake* Game

Our project consists of a terminal-based game which plays similarly to the arcade classic, *Snake*. In our implementation, the user controls the "snake," which is represented by a sequence of special ASCII characters. The snake "moves" in a 2D plane of limited space, attempting to eat the "food" which appears at random coordinates in the grid, represented by an "X". The characters which make up the visual rendering of the snake will appear to "turn" to follow the head of the snake. Additionally, the head of the snake is unable to move directly backwards into itself. The game has two different speeds or "difficulties" at which it can be played, which is determined by the user at the start of the game. Once the difficulty is selected, the game will begin when the Wiimote is picked up by the user. From there, the user is able to flick the Wiimote in the X and Y axis to control the heading of the snake. Each time the snake eats the food, the score will increment and the snake will grow in size. The snake cannot touch the borders of the 2D plane or attempt to pass through a segment of its body, else the game will end. If the snake grows to a size at which it fills up the entire board, the game is won.

This project required extensive use and application of a number of concepts we have learned in this course. A major part of the design of this project was the programming of the game itself using object-oriented design in the C++ language. The game code consists of a number of classes which all come together to create the final product. Additionally, knowledge of a number of Linux commands and syntax was necessary to compile the project in a Makefile as well as use the shell command to connect the Wiimote to the Zedboard. Information about how the Wiimote sends data packets to the Zedboard was also utilized in our code to a great extent. This helped us to learn better design for object-oriented code structure as well as use of

the Zedboard's memory storage and how external devices are able to interact with it. Overall this project required the knowledge of software and hardware aspects presented in the course as well as how to mesh the two and get them to work in conjunction.

As for individual roles, Oakley primarily focused on the design of the game as well as writing the code for the game. Kenneth focused on the presentation of our game, including production of the final video that displays our project's features. The two of us worked together to implement the Wiimote controls and functionality into the game.

Here is a link to the video in which we display our project and its features:

https://www.youtube.com/watch?v=GMwjNODib3M