

CSM152A – Project Proposal

Names: Jahan Kuruvilla Cherian; Kevin Xu

Group: Lab 6 – Group 9

UID: 104436427; 704303603

TA: Babak Moatamed

1.0 OVERVIEW

Our project is going to be an emulation of the popular iOS game – Doodle Jump. The project will incorporate the PMOD Joystick with its on built buttons, the VGA adapter on the Nexsys 3 Board, possibly a speaker and the Seven Segment display for the score.

2.0 GAME

The game is based on a tiny character that jumps upwards on blocks, with the screen moving up with him as he passes a certain vertical limit. Along his climb up, he will encounter small monsters that he can shoot. The aim is to get as high as possible without touching a monster on the way. The higher the player gets, the higher his score gets.

For the movement of the character we will be using a PMOD Joystick and constraining valid moves to only be horizontal movements of the joystick to emulate the sideways taps on a touch screen to move the character left and right. The player must time their movements in accordance to the regular jumps the tiny character makes, so as to jump onto the relevant platforms.

The character will be able to shoot using a button on the PMOD Joystick or on the board itself to kill the monsters above it.

There will be a few rotation of sound clips that will play through the speaker corresponding to jumps onto platforms, shots and killing of monsters.

The score will be recorded on the seven segment display at regular intervals, as the player makes his/her way up the game.

The display will be placed in a vertical landscape onto the computer screen through the FPGA using the VGA connection.

Another button on the board will allow the player to reset back to the start of the game, losing any progress made. This will also reset the score back to zero.

3.0 GRADING RUBRIC

Doodle and Platforms (30%) – Implement the doodle character onto the screen along with randomly generated platforms the doodle can land on. The character must be jumping at regular intervals.

Endless Jumping (20%) – Make the game so that passing a certain vertical threshold will move the game screen up by a certain offset, in order to emulate an endless game experience.

Monsters and shoot (20%) – Place randomly generated monsters moving on a horizontal path, and implement the player's ability to shoot this monster down at any given moment if the corresponding button is pressed.

Scoring (10%) – Implement the scoring functionality based on regular increments of jumps and monster kills onto the seven segment display.

Game Restart (10%) – Implement the restart functionality of the game, so as to reset the display and character, with newly generated maps and a fresh start score.

Sound (10%) – Incorporate small clips into the gameplay, connecting it to speakers on the board, for when the character jumps, shoots and kills.