

ECE 385

Spring 2023

Final Project Proposal

Yahav Mangel, Elizabeth Boyer

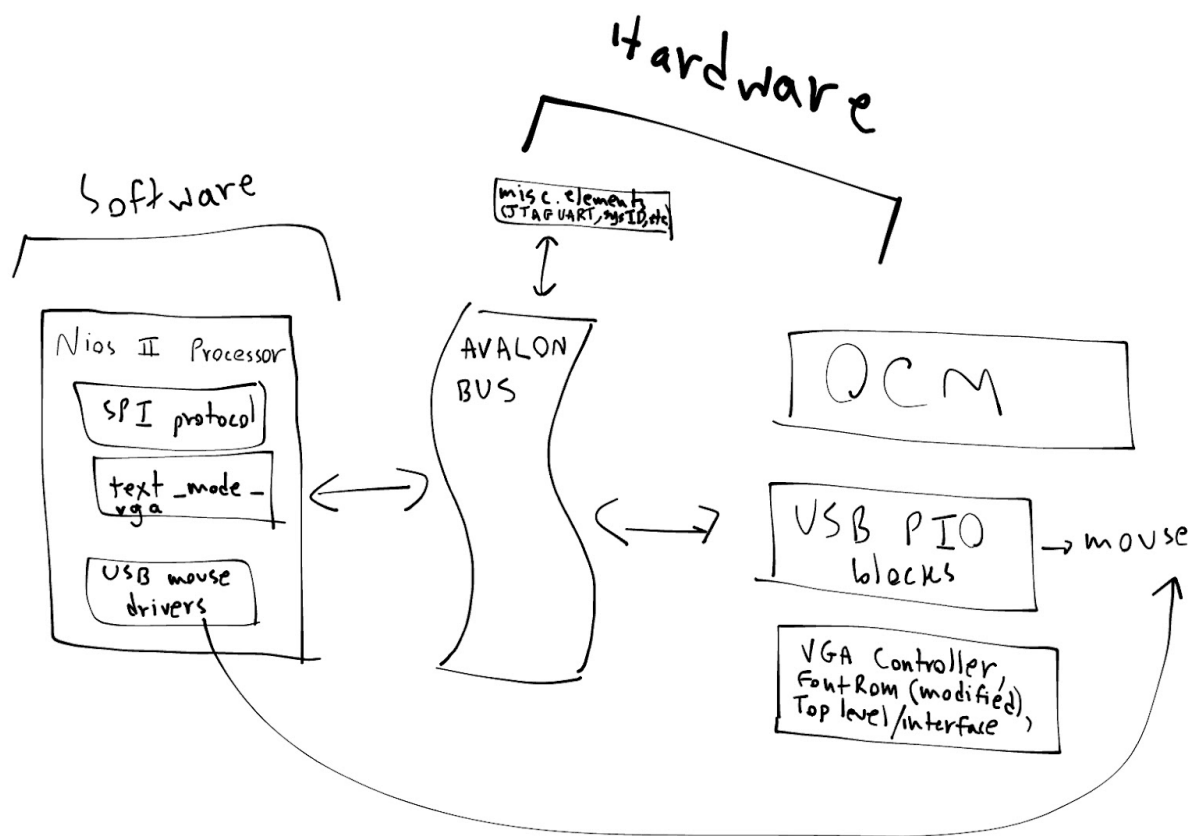
AL1 - April 10th

TA: Yash Damania

Idea and Overview

For our final project, we propose to recreate the popular arcade game "Duck Hunt". We will use a VGA monitor for all visuals, and will use the NIOS II CPU for the purposes of both supporting color in our visuals (similar to lab 7.2), as well as for interfacing between a USB mouse (which will be used to control the game) and the VGA screen. In our game, we will implement: the basic graphics seen in the original game with frame to frame animation, a cursor (controlled by a USB mouse) that allows the user to control the game (where to shoot), and (if we have time) features such as a main menu screen, a score system, and motion control.

Block Diagram



List of Features

Baseline features:

- Basic game graphics (ducks, dog, background, shot counter, frame animations for ducks/dog)

- Mouse I/O

“Reach” features:

- Main Menu screen
- Score
- Motion Control (Use a 3d printed FPGA holder shaped like a hunting rifle instead of a mouse)
- Sound
- Different game modes (1 Duck, 2 Ducks, Clay Disk)

Expected Difficulty and Justification

We expect the base game to be implementable with time, with a score of 6. We believe that adding a main menu and a score system would increase our difficulty score to about a 7. Adding motion control and sound, we believe, would increase our difficulty score to an 8 or 9.

Proposal Timeline

- First week: NIOS II system should be set up to fit our game (modifying palette and graphics), graphics should be displaying
- Second week (have done before mid-project checkpoint): Animations working and mouse operational
- Third Week: Aim to have the base game up and running. Possibly start on easier reach features (main menu & score system)
- Fourth Week: Work on more difficult reach features (and fix base game/easier reach features if necessary)