

6.111 Checklist

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Color Video Module

- Modified from pre-written code. Takes in analog camera data, converts ycrCb data to rgb data, feeds to the ZBT.
- Will be tested by showing color camera input.

Fingertip Detection Module

- Takes in rgb data going to the display, detects the locations of the fingertips.
- Will be tested by a separate bit file. A switch will change between modes. One mode will display normal camera input. The other will have a dot representing the fingertips superimposed on top of the camera image.

Grasp Detection Module

- Takes in fingertip locations from the Fingertip Detection Module. Returns a signal when the fingertips make a grasping motion. Also returns a signal when the fingertips let go.
- Will be tested by separate bit file. A hand will be placed in front of camera. When a hand is grasped the screen will flash once. When a hand lets go of something, the screen will flash once more.

Mouse Cursor Module

- Will be used to test all submodules
- Display cursor on screen based on mouse input.
- Will send a "grab" signal out (to be used with game module) and display the current mouse's position
- Will be tested by displaying the cursor on screen and moving mouse around.

Ninja Module

- Generates multiple ninjas on screen with different behaviors
- Different AI strategies are actively portrayed and animated on screen
- To test, we will use the lab kit buttons to generate a ninja and observe behavior based on a mouse input cursor and varied parameters based on the switches. Examples of planned A.I. are "goomba" ninja who just walks around, "scared" ninja who moves away from the cursor, "aggressive" ninja who strictly attacks regardless etc.

Health Module

- Will work with the Ninja to detect Ninja attacks
- Will go down when ninja successfully attacks
- Game will end when health reaches zero
- To test we will give user control over health parameter and show that the game ends when health runs out

Timer Module

- Displays timer countdown at correct rate
- Game ends when timer runs out
- Will be tested by starting off at short time and letting the game run.

Display Module

- Overlays game graphics over any camera pixel
- Works with a cage display module to generate where ninjas will be able to be dropped
- Gives priority to game graphics always
- Will test several game graphics over sever input pixels, camera, solid color and another picture.

Game Module

- Taking all previously mentioned modules and putting them together in a stand alone game
- Ninjas displayed will now be able to be grabbed and moved by user input and will be generated pseudo-randomly
- A mouse cursor will act as the grabber to abstract away the camera interface
- Will be tested by allowing game to run and terminate allowing the user to be able to play as indicated using a mouse input cursor through the labk it's ps2 read ports.