6.111 Final Project Abstract
10/25/2013

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Project Description:

We plan to create a "hybrid checkers game" for our final project. This game will be a combination of a board game and a computer game as the "hybrid" in its name suggests. There will be 12 real white pieces for the human player (user of the game) and before the game begins these pieces should be placed at their proper starting locations on the 8x8 checkers board, which is displayed on a flat computer screen. Then as the user presses the "Start" button of our game, 12 red pieces for the computer AI player will be also shown at their proper starting locations on the screen. So actually, we will have 12 real pieces and 12 virtual pieces for the gameplay. When it is the human player's turn to play, the player will move one of its own real pieces to the desired location and press "I used my turn" button implying that he used his turn. Then after pressing this button, a webcam located above the screen will get an image of the screen and analyze what move has been made. If, as a result of this movement, one of the computer's pieces will be out of the game, it will be removed from its location on the screen with some visual effects (for example breaking up and disappearing of that piece). When it is computer's turn to play, our computer AI player will calculate and choose the optimal movement and will execute it on the screen. If as a result of that movement one of the human player's pieces will be out of the game, the square that piece is located in will start blinking colorfully meaning that it is human user's responsibility to remove its own piece from the game board. This project will consist of several tasks, such as, image recognition through a webcam located above the computer screen, creating an AI checkers algorithm on Verilog and visualizing the game board on the horizontally placed computer screen. If this game can be accomplished in a short period of time, the project can be also expanded to a hybrid "human vs. computer AI" chess game.