One-player Blackjack

A revised final project proposal for ECE 383

by

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1.1 OBJECTIVE STATEMENT

This will be a single-player game of Blackjack against the computer. The computer will act as the dealer.

1.2 REQUIREMENTS

Basic functionality

- A player must be able to play a complete game of Blackjack against the computer.
- Use keyboard inputs to implement game inputs.
- The HDMI Monitor must be used to draw the "cards" and simulate gameplay. Card dimension would be 20x40 pixels.
- For this level, the deck of cards can be fixed instead of being random.
- *The UART feedback may be used for debugging and echoing gameplay.*

B-functionality

- Complete Basic functionality.
- A mouse must be used for game control.
- For this level, the deck of cards needs to be random, and cards cannot be repeated (2 Jack of Clubs for example).

A-functionality

- Complete both basic functionality and B-functionality.
- Include audio sound outputs for start of game and end of game.

1.3 LEVEL-0 DESCRIPTION & TOP-LEVEL DESIGN

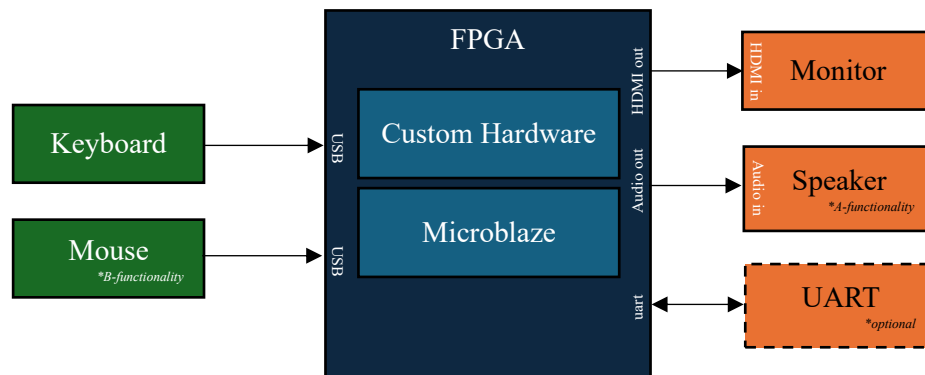Overall Inputs:
    Keyboard via USB
    Mouse vis USB
    Switch
Overall Outputs:
    Display on Monitor
    Speaker
Overall Behavior:
    A switch on the FPGA would be used to start the game. This switch will act as an interrupt, if turned off game will end regardless of progress. The game will initially be played using the keyboard ("H" key to hit and "S" key to stand). A new input device will be introduced later(mouse) to control game inputs (left mouse button to hit and right mouse button to stand). The display will show cards as they are dealt (dealer's initial card will not be revealed till end of

game). Once the end of game has been reached (dealer is done hitting) the result of the game will be shown on the display (a green screen for player win, red screen for player loss).

DOCUMENTATION

None.