

FPGA Project

Tic Tac Toe

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March 8, 2019

1 Idea

- How it works

2 Requirements

- Software Requirements
- Hardware Requirements

3 Implementation strategy

- How it Works

Outline

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3 Implementation strategy

- How it Works

- When the player/ computer plays the game, a 2-bit value is stored into one of the nine positions in the 3x3 grid
- 2'b00 is stored into a position when neither the player or computer played in that position
- 2'b01 (X) is the value to be stored when the player played in the position and 2'b10 (O) is the value to be saved when the computer played in the position.
- Position played by the player is represented in an 'X'.
- Position played by the computer is represented in an 'O'.

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- Language - VHDL

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- How it Works

Hardware Requirements

- VGA Monitor
- Keyboard

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 - How it Works

Implementation strategy

- The player/ computer wins the game when successfully placing three similar (01-Xs) or (10-Os) values in the following row pairs
- Winner detecting circuit is designed according to the winning rule.
- Winning rule– (1,2,3); (4,5,6);(7,8,9); (1,4,7); (2,5,8);(3,6,9); (1,5,9);(3,5,7).
- A detector is to check if all the positions are played and no winner is found.