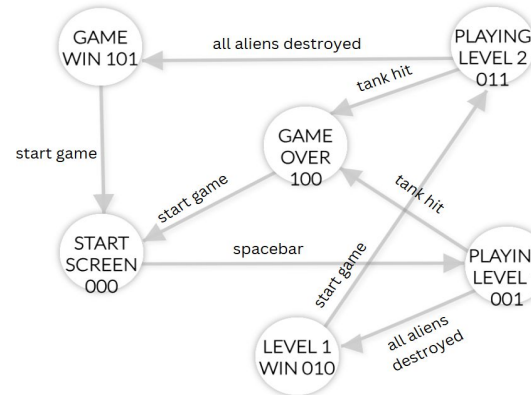


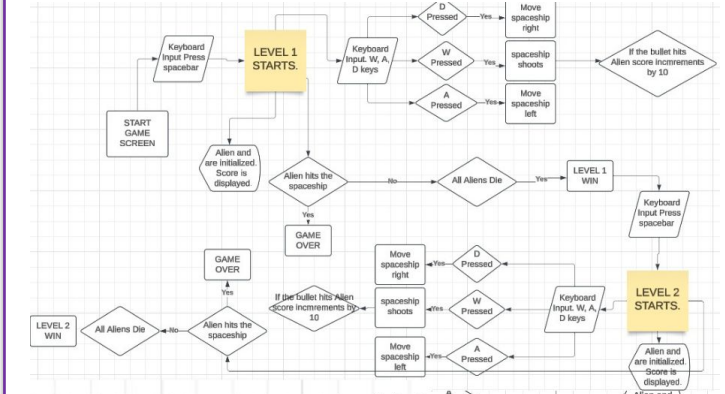
Introduction

- **FPGA & Board:** Basys 3 FPGA
- **I/O Devices:** Keyboard Input and VGA Output
- **Language:** Verilog (IEEE 164)
- **Objective:** Defend your tank against the hoard of incoming aliens.
- **Movement:** Use the A and D keys to move left and right.
- **Attack:** Press W to shoot.
- **Reset & Pause:** Use U18 push button on FPGA to reset and P to pause the game.
- **Game Start & Level Transition:** Spacebar.
- **Finite State Machine (FSM):** The game uses a Moore Machine where the next state depends solely on the current state.

FSM State Transition Diagram



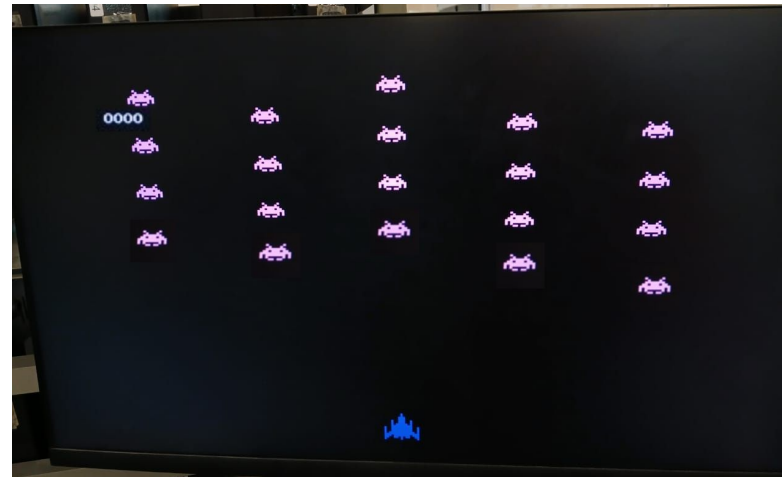
User Flow Diagram



System Diagram



Results



Hardware Resource Utilization

