Flappy Bird

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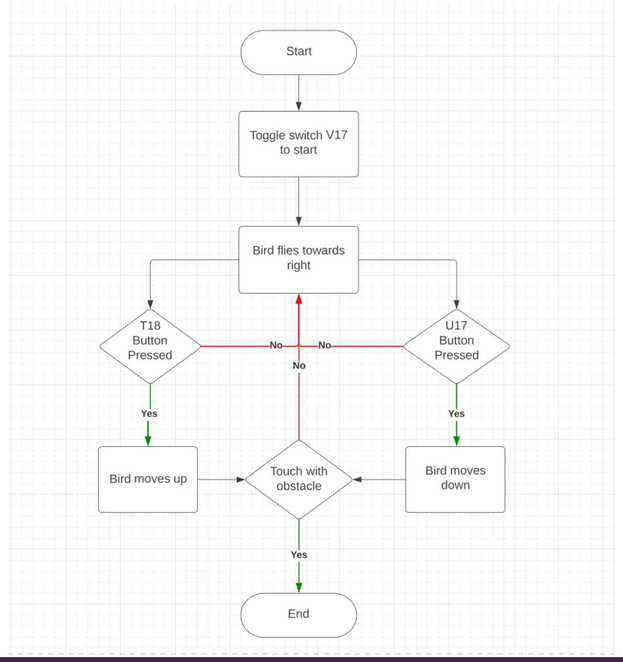
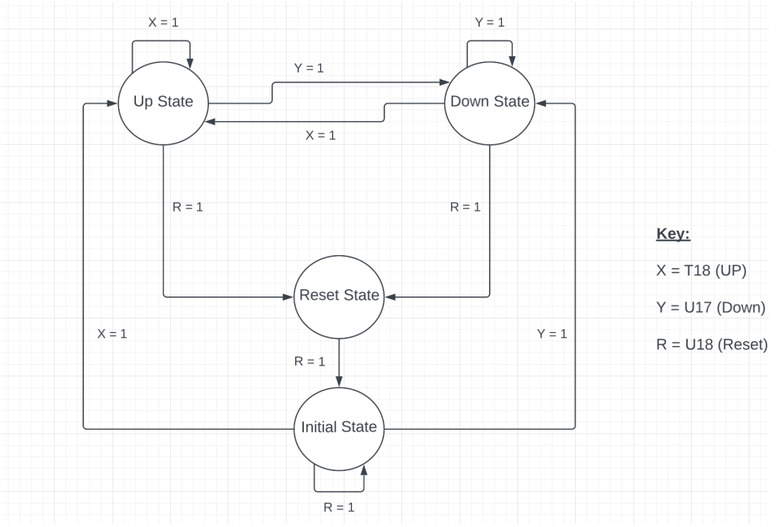
Introduction

We have created the Flappy Bird game for our project using Moore FSM logic as the transition to the next state is determined entirely by the present state. We implemented this game using the Basys 3 FPGA board. The game works by taking the input from the user through the FPGA board with U17 as our down key and T18 for jump. The output will be displayed on the screen through a VGA output where the pixels are setup as the bird moves up and down through the obstacles, simultaneously increasing the score with time. HDL Verilog is our programming language of choice to bring this game to life since it is taught to us in this course.

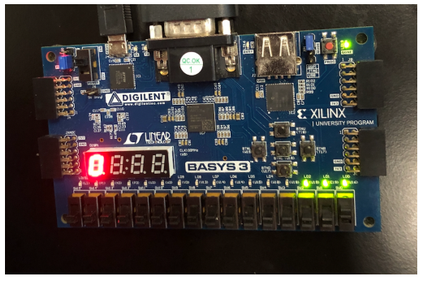
Userflow Diagram



FSM State Transition Diagram:



System Diagram



input: Basys3 FPGA

output: VGA

Results

Hardware Resource utilization

Resource	Utilization	Available	Utilization %
LUT	631	20800	3.03
FF	212	41600	0.51
IO	32	106	30.19