

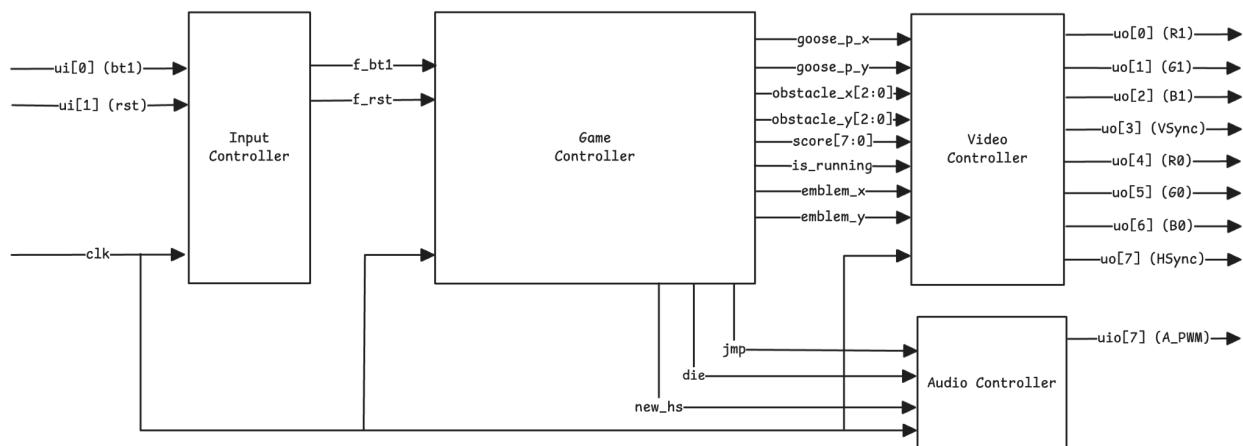
ECE 298A Proposal (CE 2B)

Team: Krish Patel, Sunnie Kapar

Project Description:

This project aims to describe a game similar to the Google Chrome Dino game. The game will have one user input, a jump button. It will display a goose attempting to jump over the ION railway crossings, and dodge the University of Waterloo emblem. It will be implemented in Verilog and designed for Tiny Tapeout. The game will also feature a simple background soundtrack and sound effects for the goose's jumps, collisions and new highscores.

Block Diagram:



Input Controller:

- Debounce Inputs and forward Input Signals
- Edge align Inputs

Game Controller:

- Game state management (running, game over, reset)
- Physics calculations (jump mechanics, gravity)
- Collision detection
- Score tracking and high score management
- Sprite data storage

Audio Controller:

- Respond to Game changes (death, jump, new high score) and make sound effects accordingly
- Play the score

Video Controller:

- VGA timing generation (HSync, VSync)
- Pixel-by-pixel rendering
- Sprite positioning and drawing
- Color palette management

Table List TT I/O Assignments:

uo[7:0]: HSync, B0, G0, R0, VSync, B1, G1, R1
(VGA Outputs)

ui[1:0] : rst, bt1
(Reset and Jump Button)

uio[7] : A_PWM
(For Audio Output)

Projected Work Schedule:

Component	Date	Assigned To
Input Controller	Sept 30	Sunnie
Score	Oct 7	Krish
Physics (jump collision detection)	Oct 7	Sunnie
Core logic (Score high score reset functionality)	Oct 7	Krish
VGA Sync and World Rendering	Oct 14	Krish
Goose Obstacle and Emblem Rendering	Oct 14	Sunnie
Score output and Sprites	Oct 14	Krish
Sound Effects	Oct 22	Krish