

# CSE 371 Lab 6 Proposal

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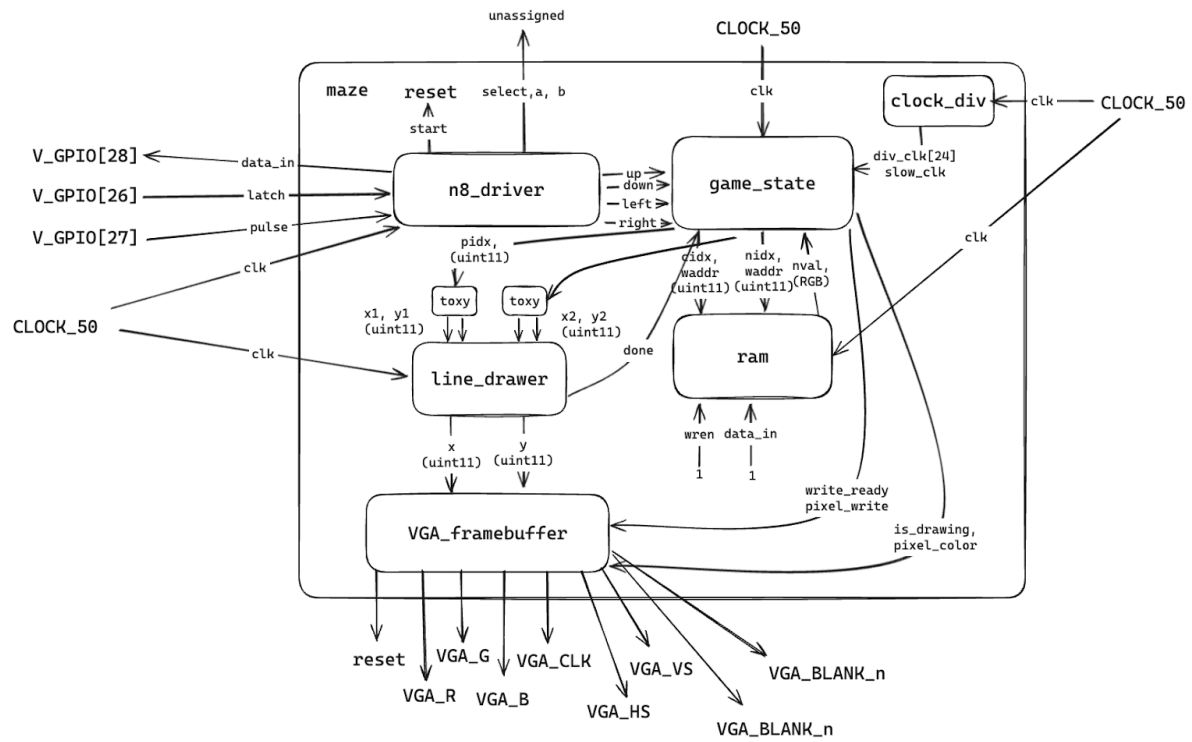
Ankith Tunuguntla, 2234509

Project Title: MazeRunner

## Project description:

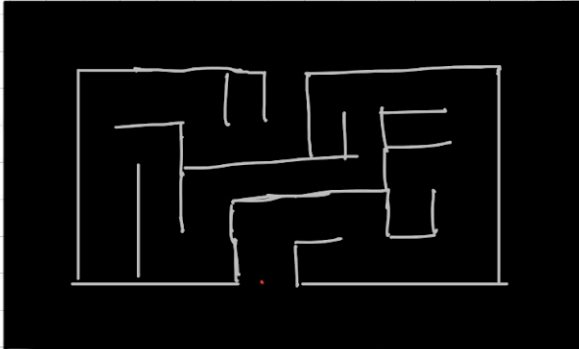
This project implements a maze game on Labsland using a hard-coded template displayed via VGA output. The maze itself is constructed by sequentially drawing straight lines between specified coordinates using a `line_drawer` module from Lab 5 controlled by a finite state machine (FSM). The FSM handles screen clearing and line rendering states, transitioning line-by-line to create the maze on startup. Player interaction is planned through the N8 controller interface, where the player will use directional buttons on the console to navigate through the maze. Movement will be constrained by logic that prevents intersection with the maze walls. The system includes core components such as a clock divider for visual timing, a VGA framebuffer for screen output, and modules for managing controller input and pixel drawing. Overall, the project aims to combine user input with low-level graphics generation to simulate a playable maze game in an FPGA environment.

Top level block diagram of our project:



## Sketch of VGA display for MazeRunner:

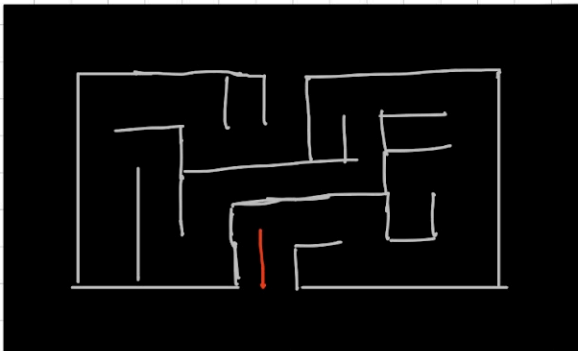
Initial state of maze:



red dot - starting point

vga

Game state of maze:



Using N8 controller as input ↕

vga

End state of maze:



vga