

Haozhe Li

Greedy Mouse Game

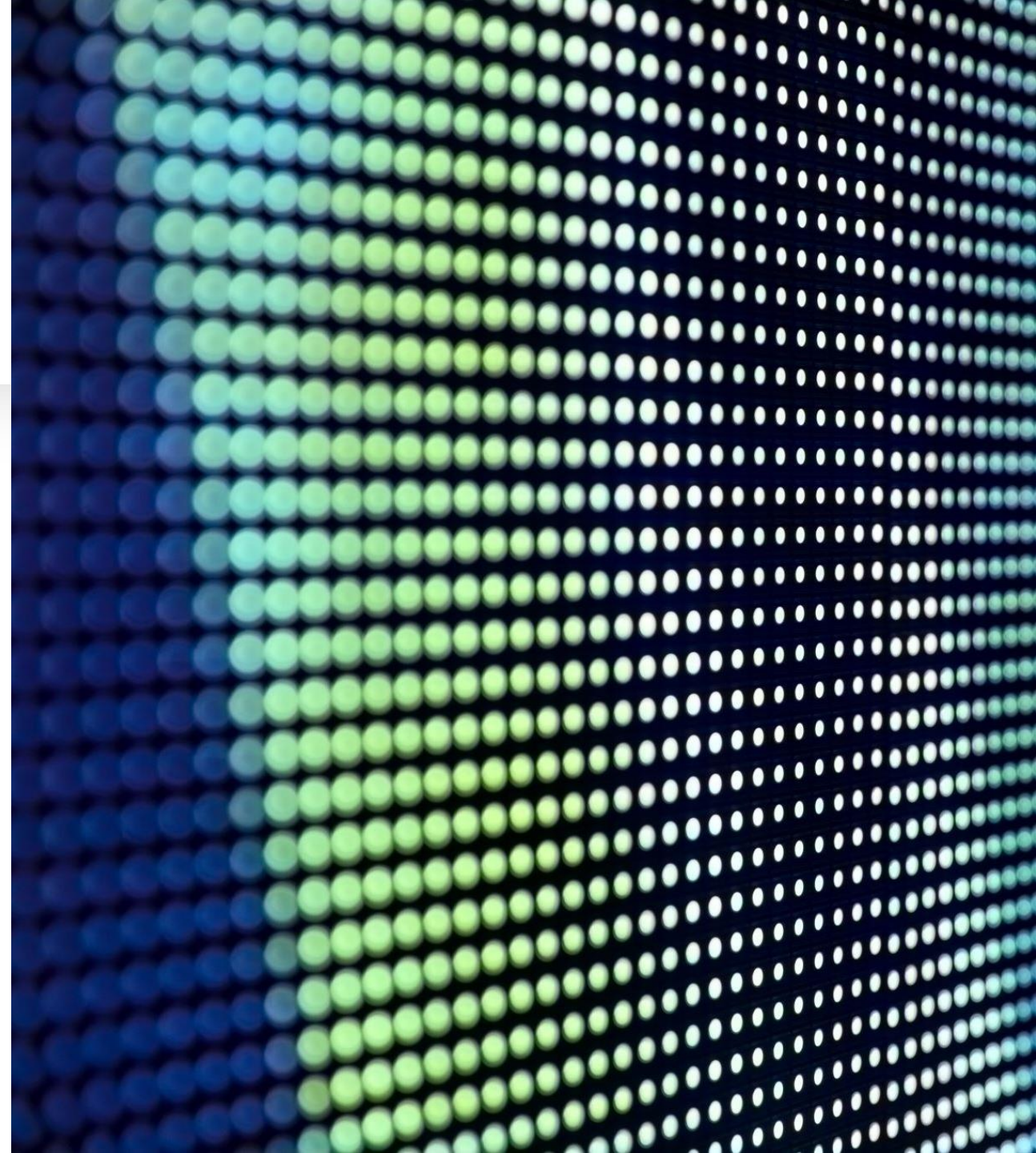
Game Description

A guy is throwing food in a parabolic motion, and a mouse is trying to run around and catch all the food. As the game progresses, the throwing gets faster. Every time the mouse misses a piece of food, its disappointment value increases by 1. When the disappointment is too high, the mouse will be depressed, and the game will end.



Parameters

- Resolution: 160 × 120
- Disappointment Value (HP): 5
- Longest time: 5 minutes
- Mouse size in pixel: 4
- Food size in pixel: 1



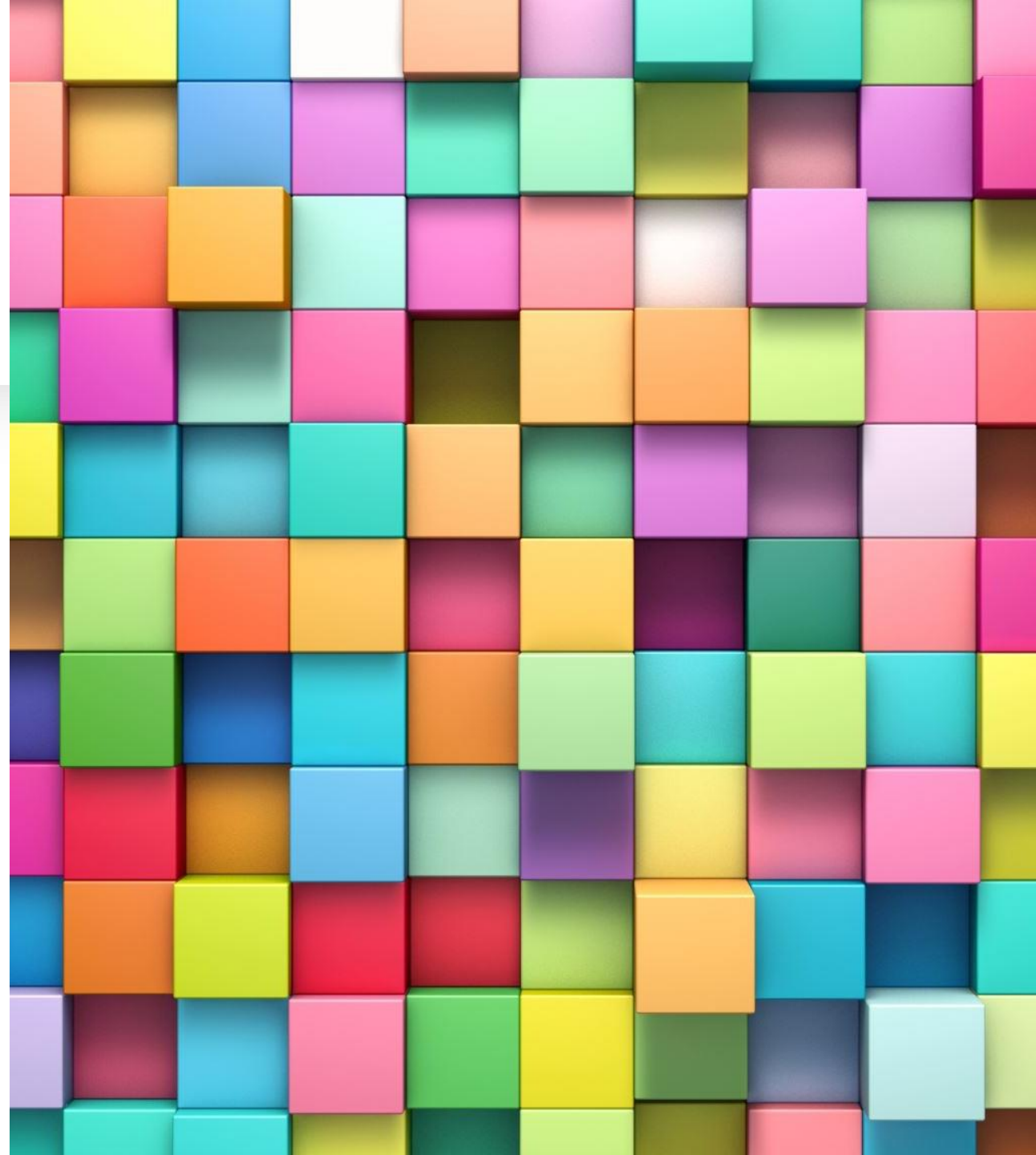
How to control the mouse

- Use PS/2 keyboard W, A, S, D and up, down, left, right arrow keys to move mouse.
- When using W, A, S, D to move, After pressing the key, the character will continue to move in that direction until you press another key on the keyboard to reset the movement state.
- When using up, down, left, right arrow keys to move, the character will move 2 pixel each time player press these keys.
- Player movement signal will be shown on LEDR2 to LEDR9



Game interface appearance

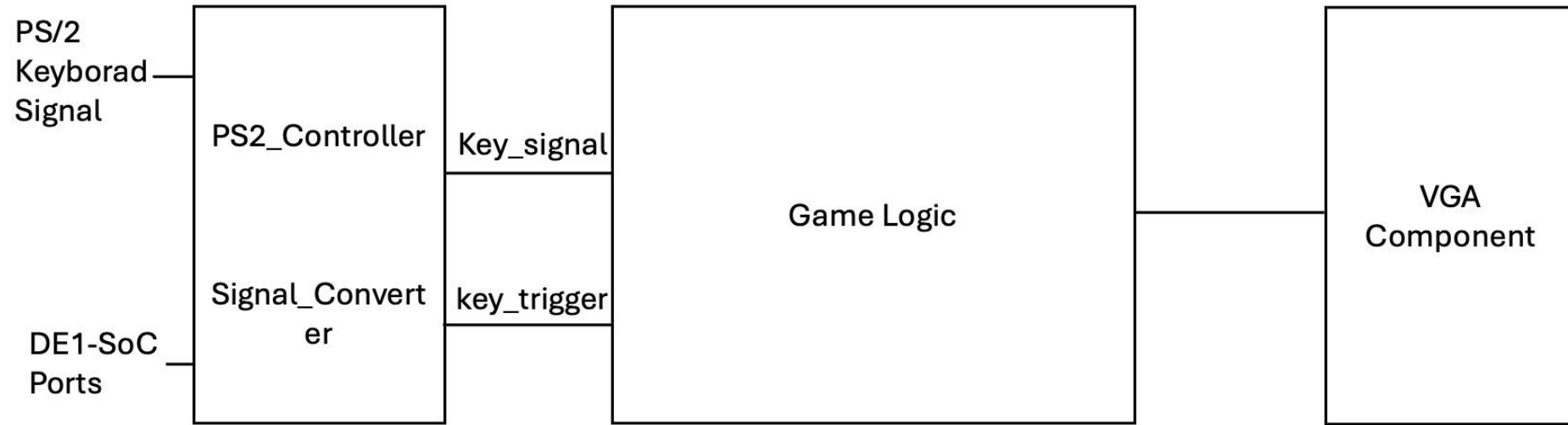
- White pixels: Represent the mouse (the character that player will control)
- Black pixels: The background of game
- Other colour pixels: different types of food, there are 3 cyan food, 3 pink food, one blue food, one yellow food, one green food, and one red food.



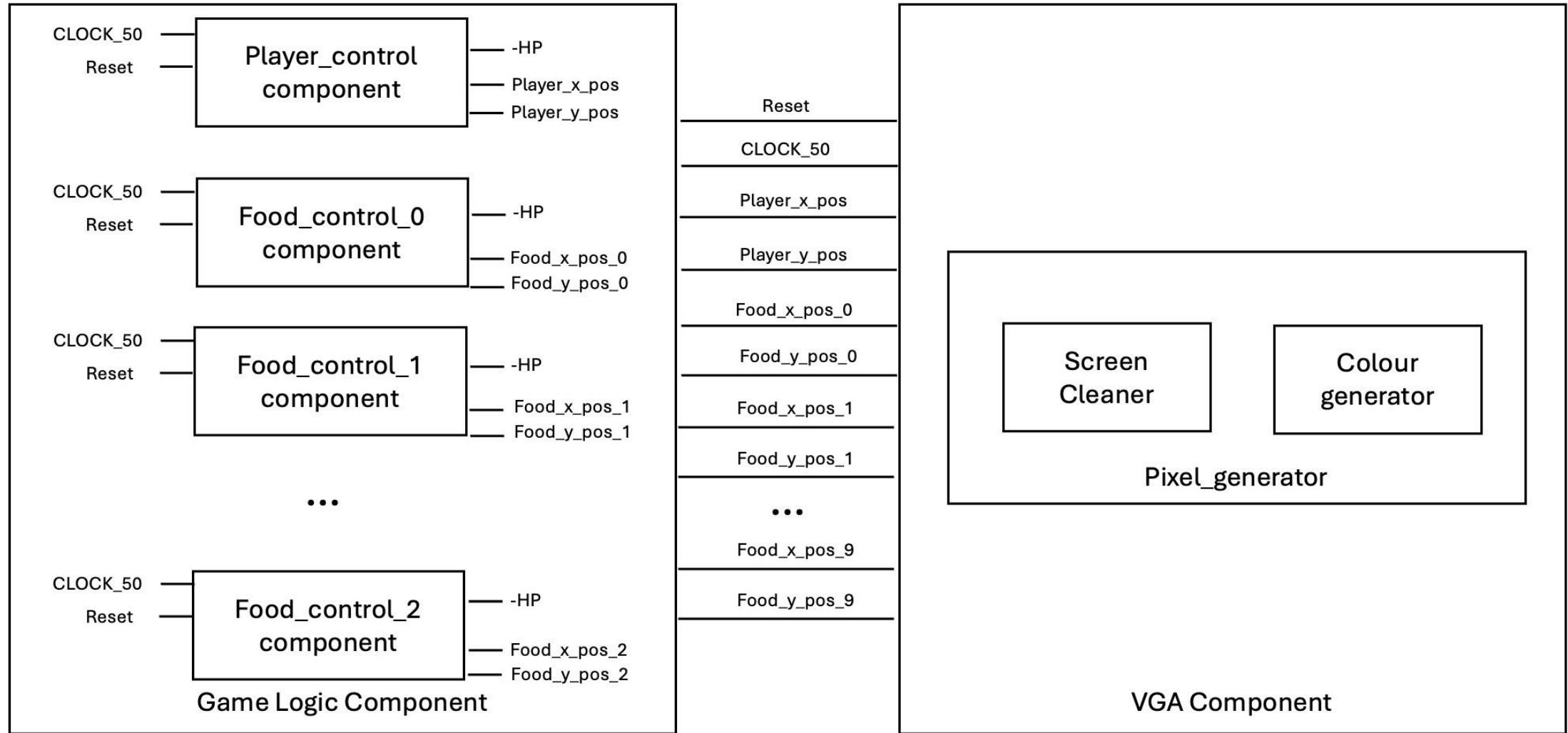
Extra game interface

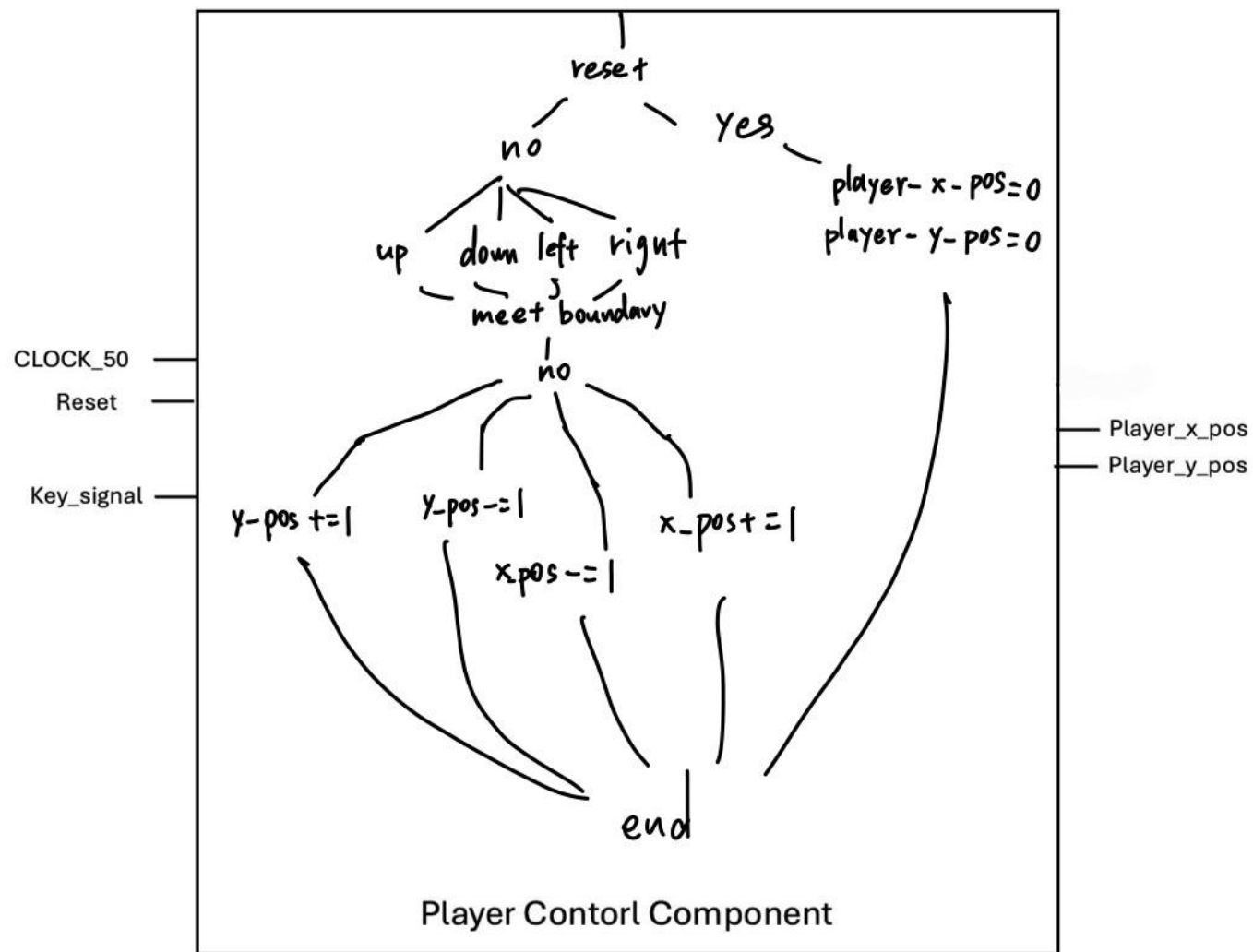
- I have no time putting other things on VGA, so I put some important information on DE1-SoC board:
 - LEDR0: Switches state once per second, used to replace the timer
 - LEDR2 – LEDR9: keyboard signal, tell the player which key the player is pressing (the game don't allow the player to press different keys at the same time)
 - HEX0: Disappointment Value (HP), when = 0, game over, player loss
 - HEX2: Victory status, if shows 1, means player win
 - HEX3: Loss status, if shows 1, means plater failed
 - KEY1: Press to restart the game immediately

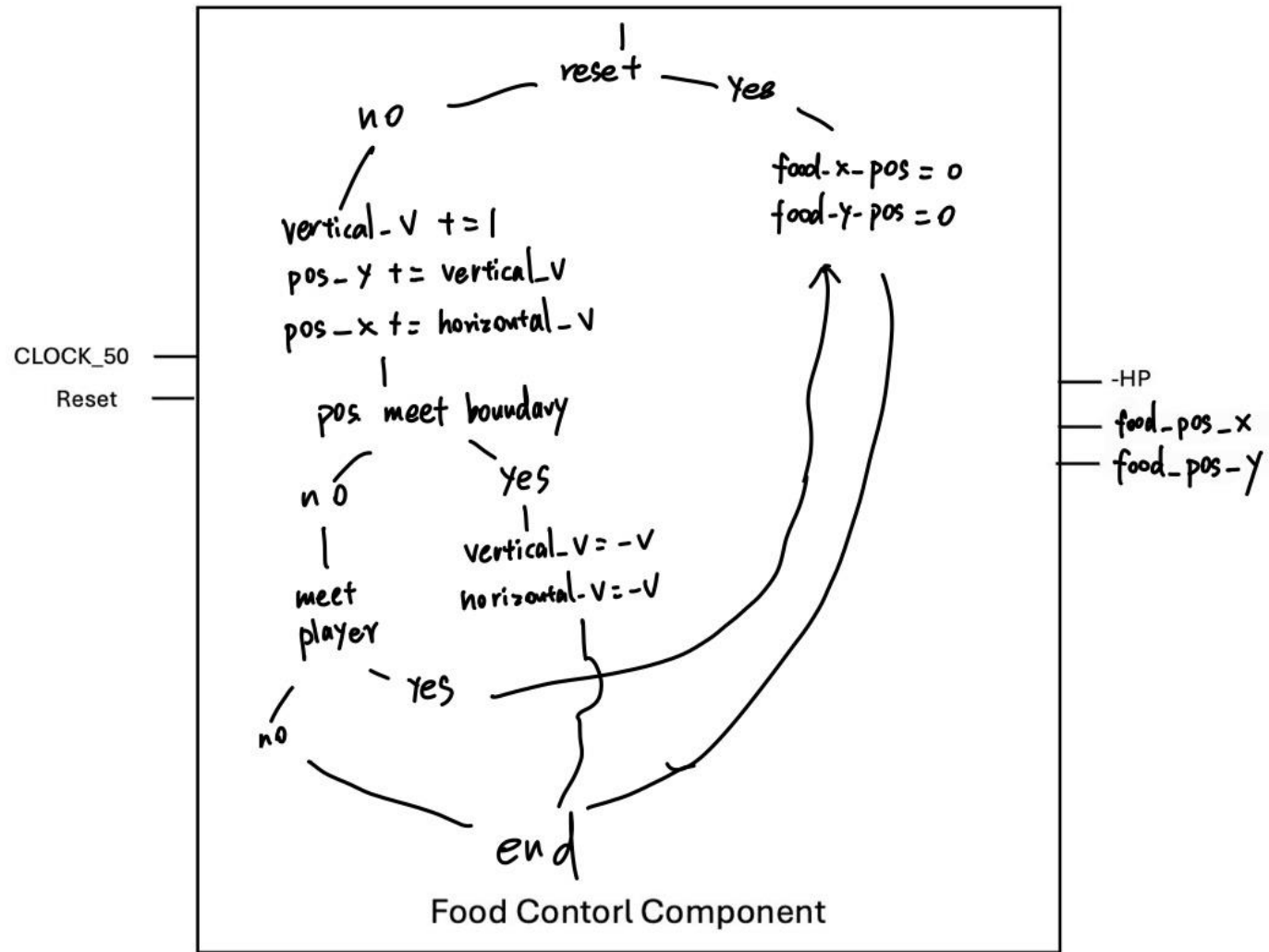
HIGH LEVEL BLOCK DIAGRAM

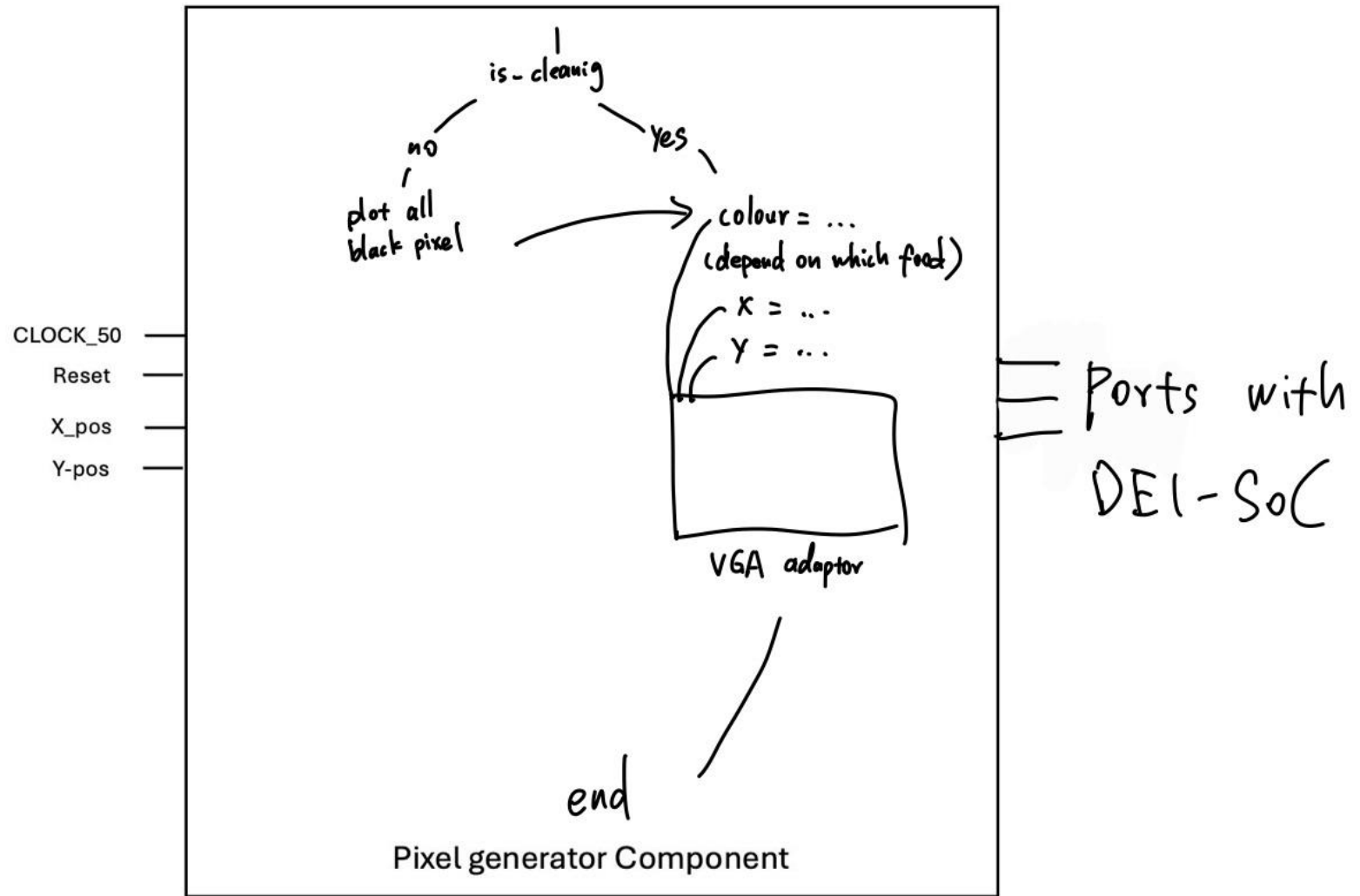


GAME LOGIC AND VGA HIGH-LEVEL BLOCK DIAGRAM









Bugs and issue

Food and player will move out of the screen

- How do I resolve: use = rather than <= in always block to first move then check if go out of boundary in one cycle

Screen flipped

- Not solved yet

Player position not showing correctly on VGA but looks fine in ModelSim

- Not solved yet

Pixel not erased properly, some pixels are left improperly and was not replace by black pixel

- Not solved yet

Supplement video

The screen is flipped, bottom of screen should represent ceiling

The game still have a lot of bugs and unfinished features

Due to player movement bug, I can't show player movement in video, I can only show the continuously generated food with random y-axis and their parabolic motion

Since I was the only one person, I didn't have enough time to complete the sound feature, so I deleted the code of the sound feature in milestone 2.

Future work

Fix	Fix all bugs
Make	Make start up interface and loss win interface
Make	Make food and mouse looks better
Set	Set different food size and reward
Make	Make logic to let the mouse become larger when eating food

Special Situation Statement

- Amelia has not provided me with anything about the project since completing the proposal. All the project-related content in this slide was completed independently by myself (Haozhe).
- Amelia only met with me during the Milestone 1 lab but left very early without providing me with any usable code and help. During Milestone 2, she emailed me saying that she could not attend due to a family emergency. She did not respond to my subsequent emails asking about the project progress. The above is all my current situation.
- On Nov 27 Evening, Amelia finally reply the email saying she can give me a slide in Nov 28 noon, but still didn't send any attachment or link to me.
- The above are all the things Amelia participated in. Since I completed all the work by myself, I didn't have enough time, that's why the project was not fully completed.