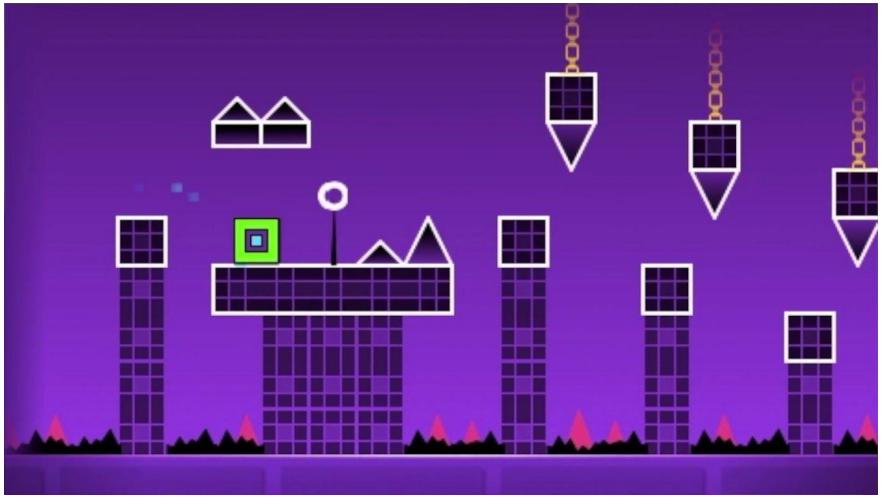
GEOMETRY DASH

Riju Dey, Rachinta Marpaung, Sasha Isler, Charles Chen

RRSC Inc.

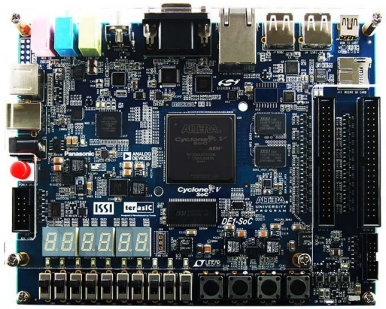
Introduction

Geometry Dash is an obstacle avoidance game that challenges players to navigate a sprite through a scrolling obstacle course of geometric shapes.



High Level Overview

user input

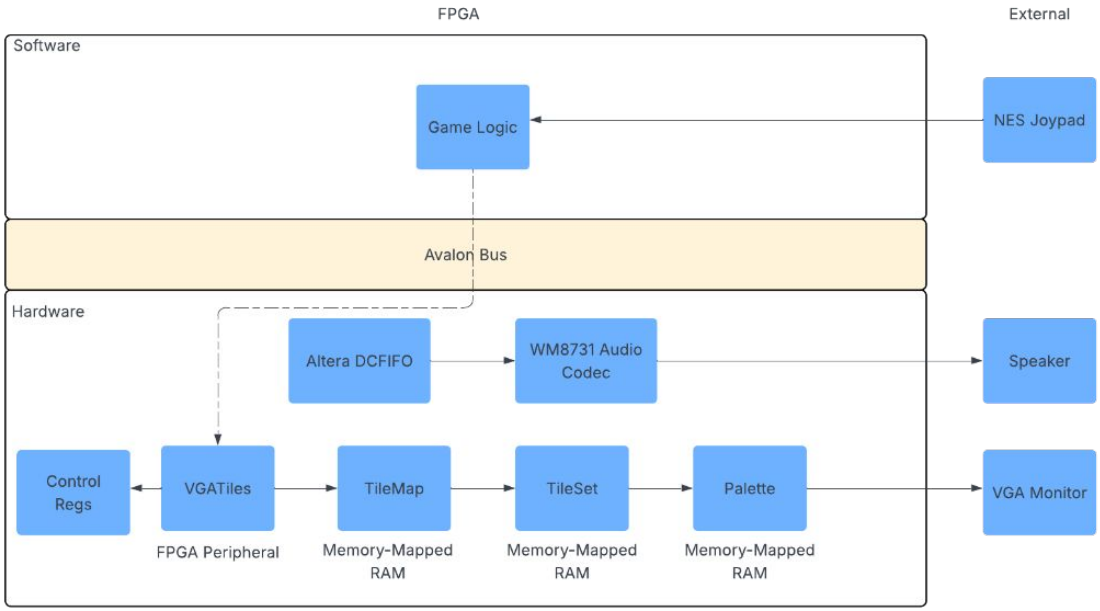


Goals

Recreate the essential aspects of the platformer Geometry Dash, including:

- A side scrolling level with obstacles
- A player-controlled square that jumps and evades obstacles
- Lively music playing in sync with the gameplay

System Block Diagram



Color Table and Tile Map

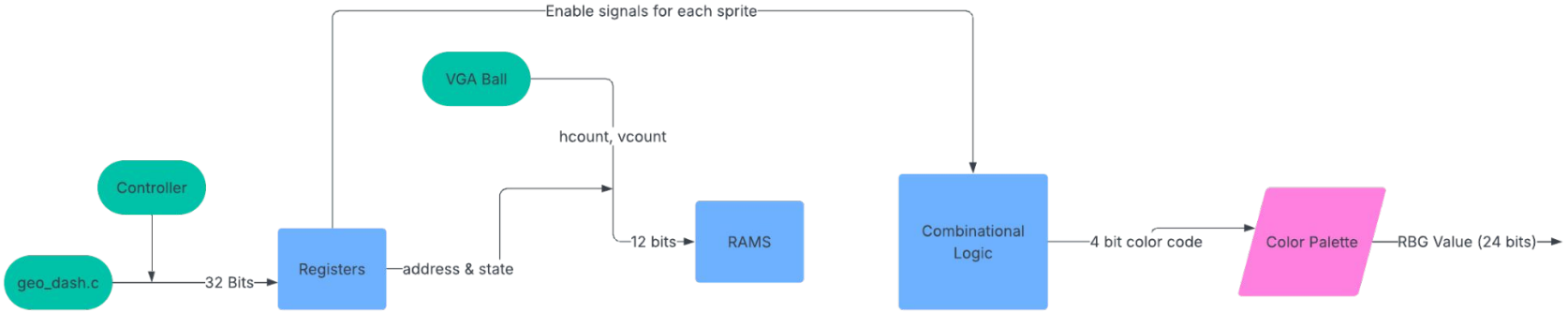
Array of 300 different addresses (20x15). Each address corresponds to a 32x32 tile.

Our palette had 16 colours but we only used colors 0,5,6,7

Color Table	
0	00 00 00 00
1	00 FF 00 00
2	00 00 FF 00
3	FF FF 00 00
4	00 FF FF 00
5	6D FA 1C 00
6	36 AD F9 00
7	00 6C B3 00
8	FF A5 00 00

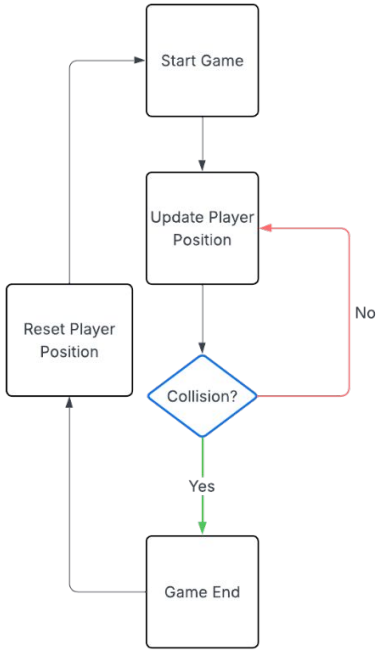
Tile Map and Scrolling

Sprites


Enable signals for each sprite
VGA Ball
hcount, vcount
Controller
geo_dash.c
32 Bits
Registers
address & state
12 bits
RAMS
Combinational Logic
4 bit color code
Color Palette
RBG Value (24 bits)

Game Logic

We implemented the following Game Logic for Geometry Dash, entirely in software.



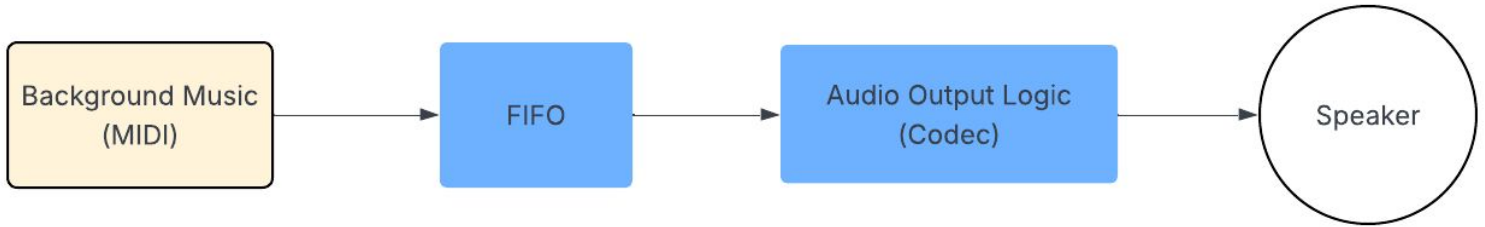
Resource Budget

The Resource Budget for Geometry Dash was as follows.

	Dimensions	Size (bits)
TileMap	512 x 8	4096
TileSet	16384 x 8	131072
Palette	16 x 24	384
Control Regs	2 x 8	16

Audio Output

We attempted to implement audio output, but we were not able to get this to work



DEMO

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THANK YOU

AGENDA

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2. High Level Overview
3. Goals
4. System Block Diagram
5. Game Logic
6. Resource Budget
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