

StrEEt Fight

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1 Introduction

We propose a 2D, 2-player street fighting game, where players interact with the game via USB gamepads and a VGA monitor. The gamepad has a joystick and two buttons. The joystick controls the movement of the player: moving the joystick left or right moves the player left or right, moving the joystick up makes the player jump, and moving the joystick down makes the player duck. The two buttons control punches and kicks, respectively. On the VGA monitor we will display a background terrain, the two players, and two health bars. The players will be on opposite sides of the screen, facing one another, with their respective health bars in each corner. When one player hits the other, the other player incurs damage and their health bar decreases. When one player's health bar decreases completely, the other player wins. We will also include sound effects when a player is hit and when a player dies.

2 Hardware and Software Description

Hardware Components:

- Altera DE1-SoC Board
- VGA Monitor
- 2 USB Gamepads (joystick + 2 buttons)
- Audio Line Out

Software Components:

- Game logic
- Physics logic

We will write device drivers for the VGA Monitor, the USB gamepads, and the audio output. The USB Gamepads will be Gamelec 2-Player Arcade Buttons and Joystick DIY Controller Kit (available at <https://www.amazon.com/Gamelec-2-Player-Controller-Raspberry-Joysticks/dp/B077FRWMKF>).

3 Project Plan

- Milestone 1: Completion of VGA driver and interface.
- Milestone 2: Completion of USB gamepad and audio output drivers and interface.
- Milestone 3: Completion of game and physics logic, testing and debugging.