“Let’s Take This Outside” Boxing

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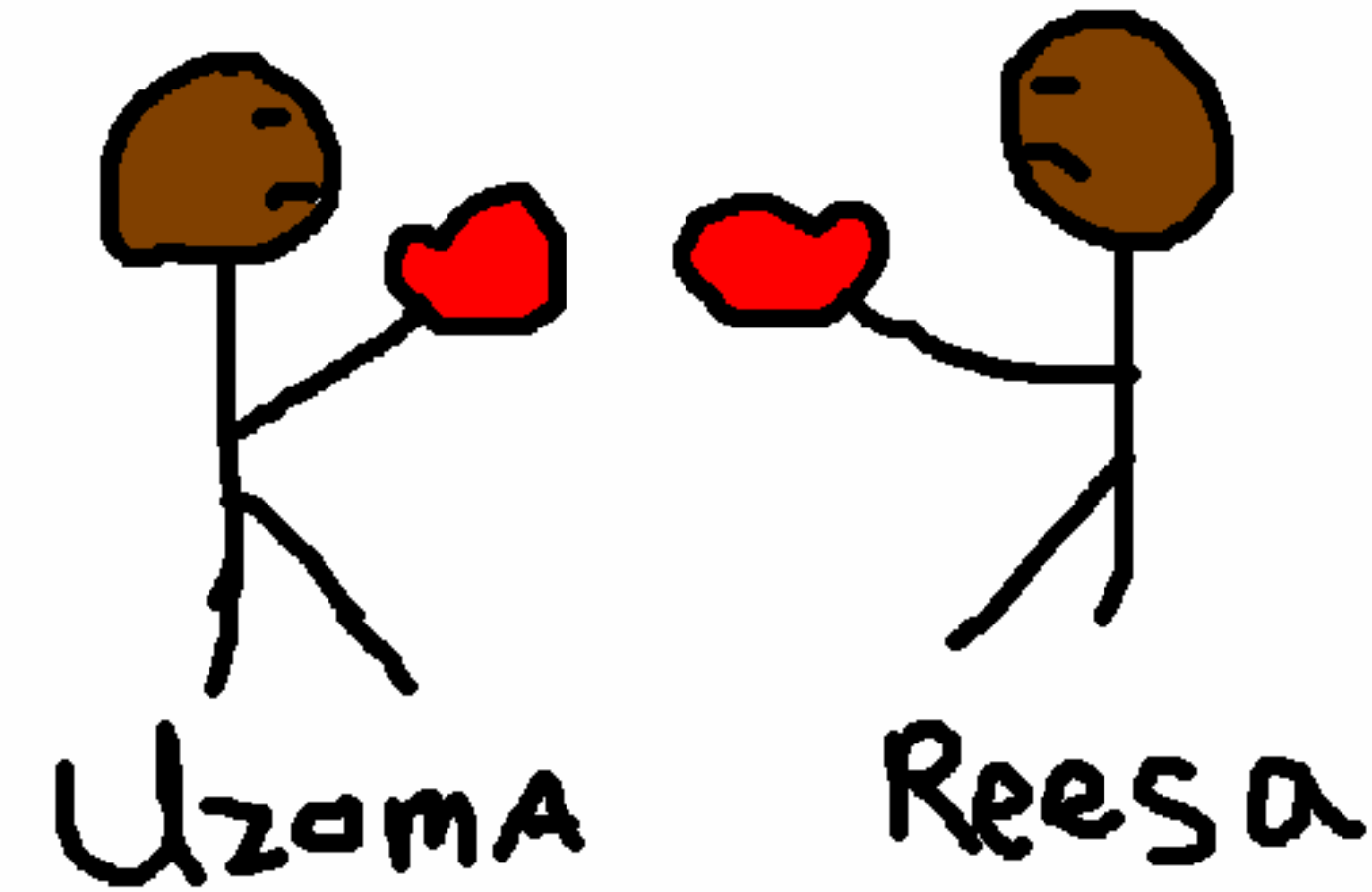
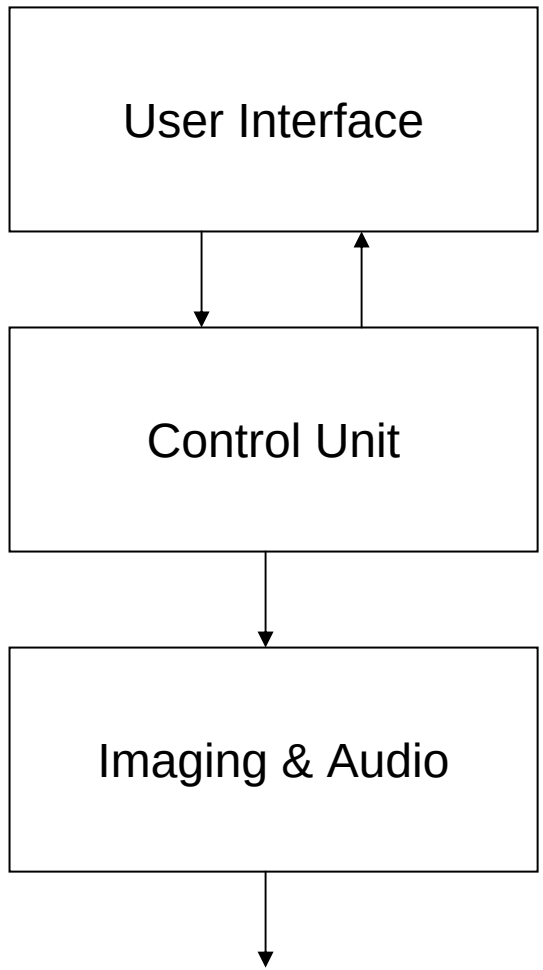
Motivation



Overview

- One or two player boxing game
- 3 Modules
  - User Interface
  - Control Unit
  - Imaging & Audio



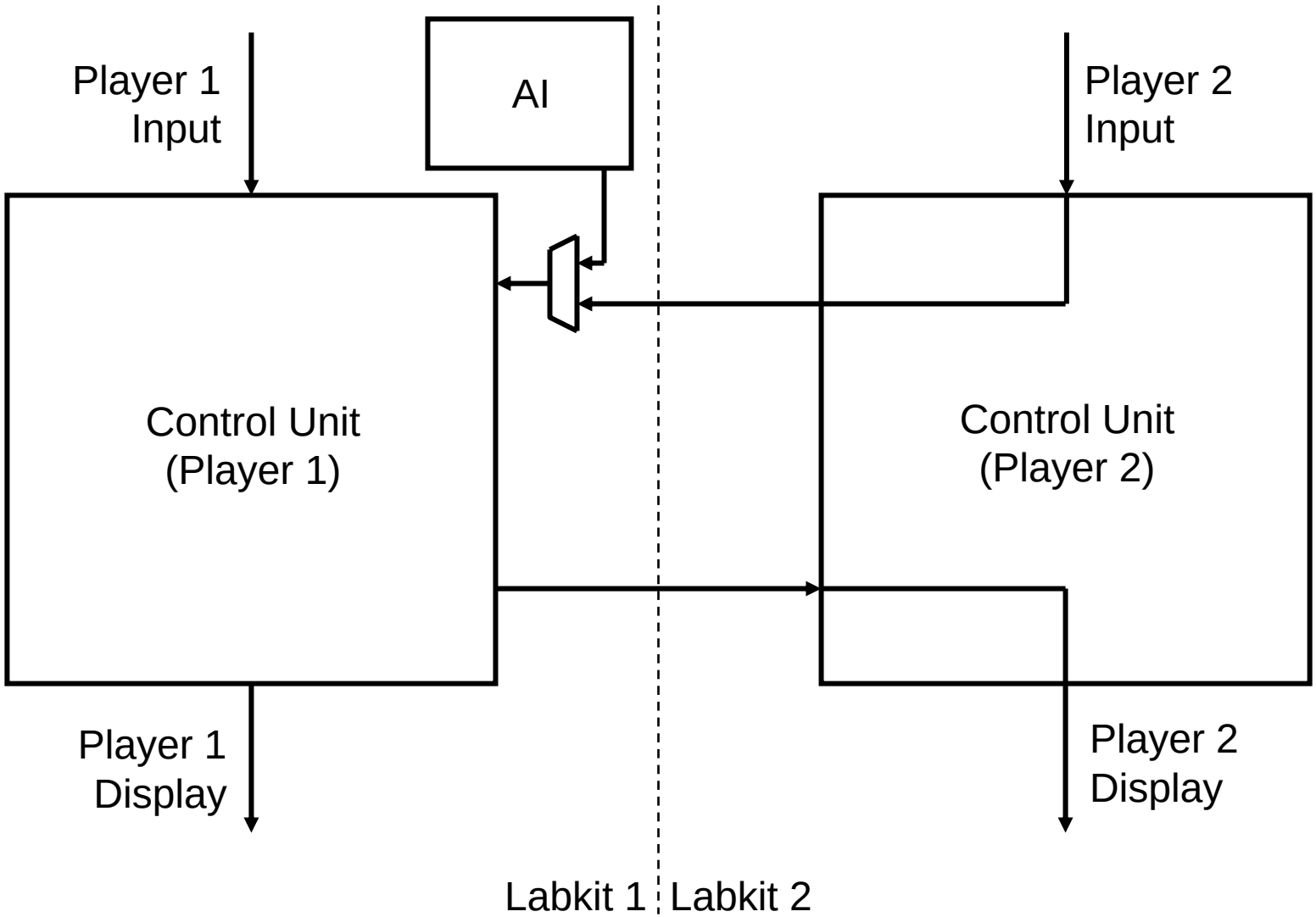
User Interface

- Camera
  - horiz. & vert. position of gloves
  - dist. between gloves
- Colored gloves
  - green for easy detection
- 2 axis accelerometers
  - detection & force of a punch
- Outputs positions of hands & force of a punch to Control Unit module

Control Unit

- Inputs from Camera and Accelerometers
- Inputs from AI module or other Labkit
- Updates player state
  - Movement
  - Punches
  - Life and Energy
- Outputs to Imaging & Audio modules and other Labkit

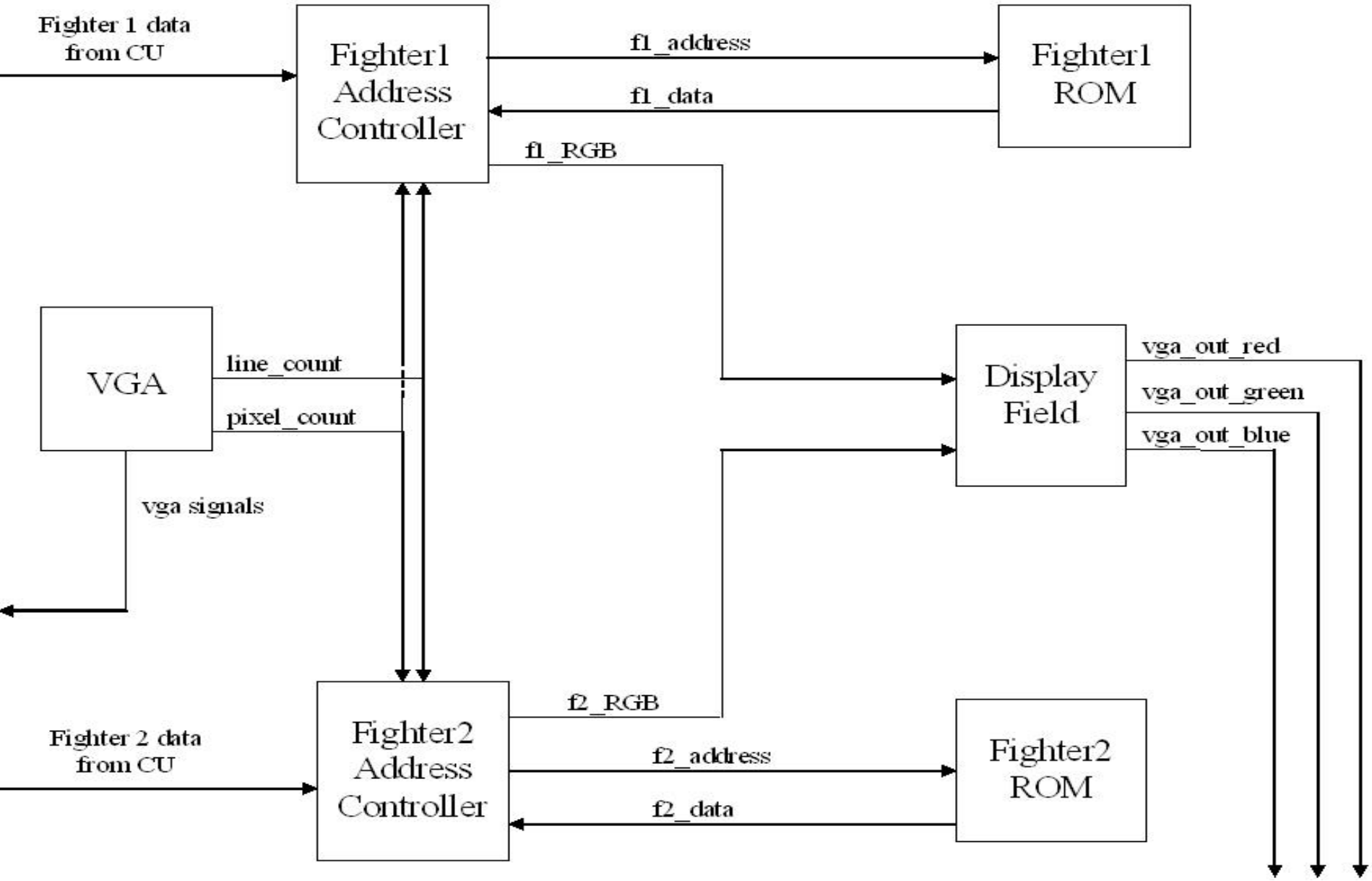
Control Unit Data Flow



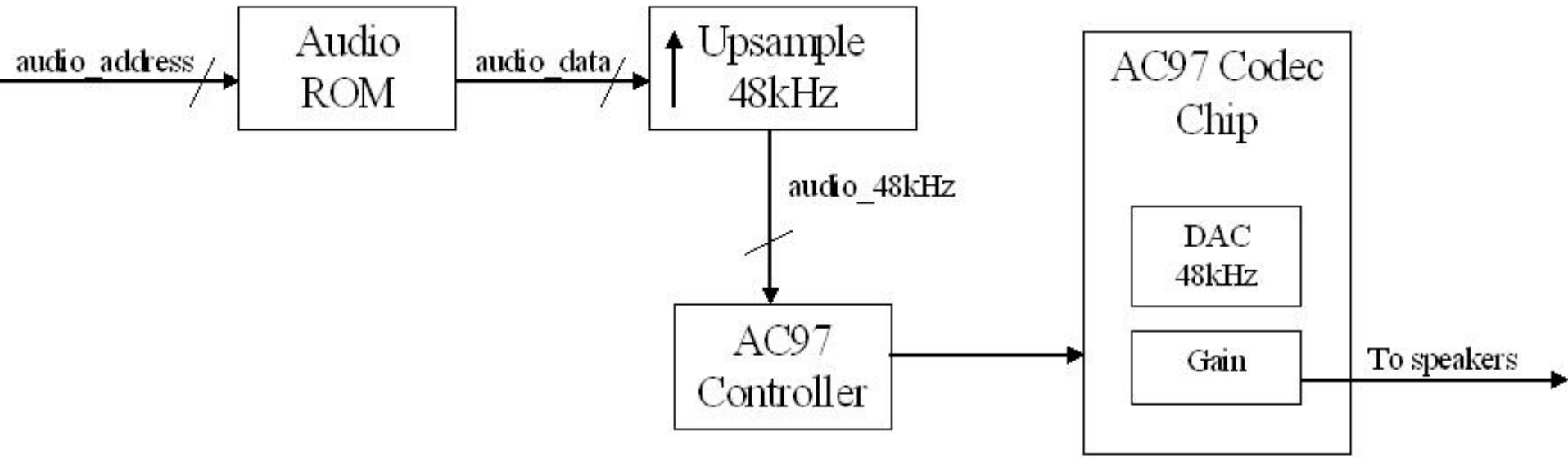
Control Unit Computation

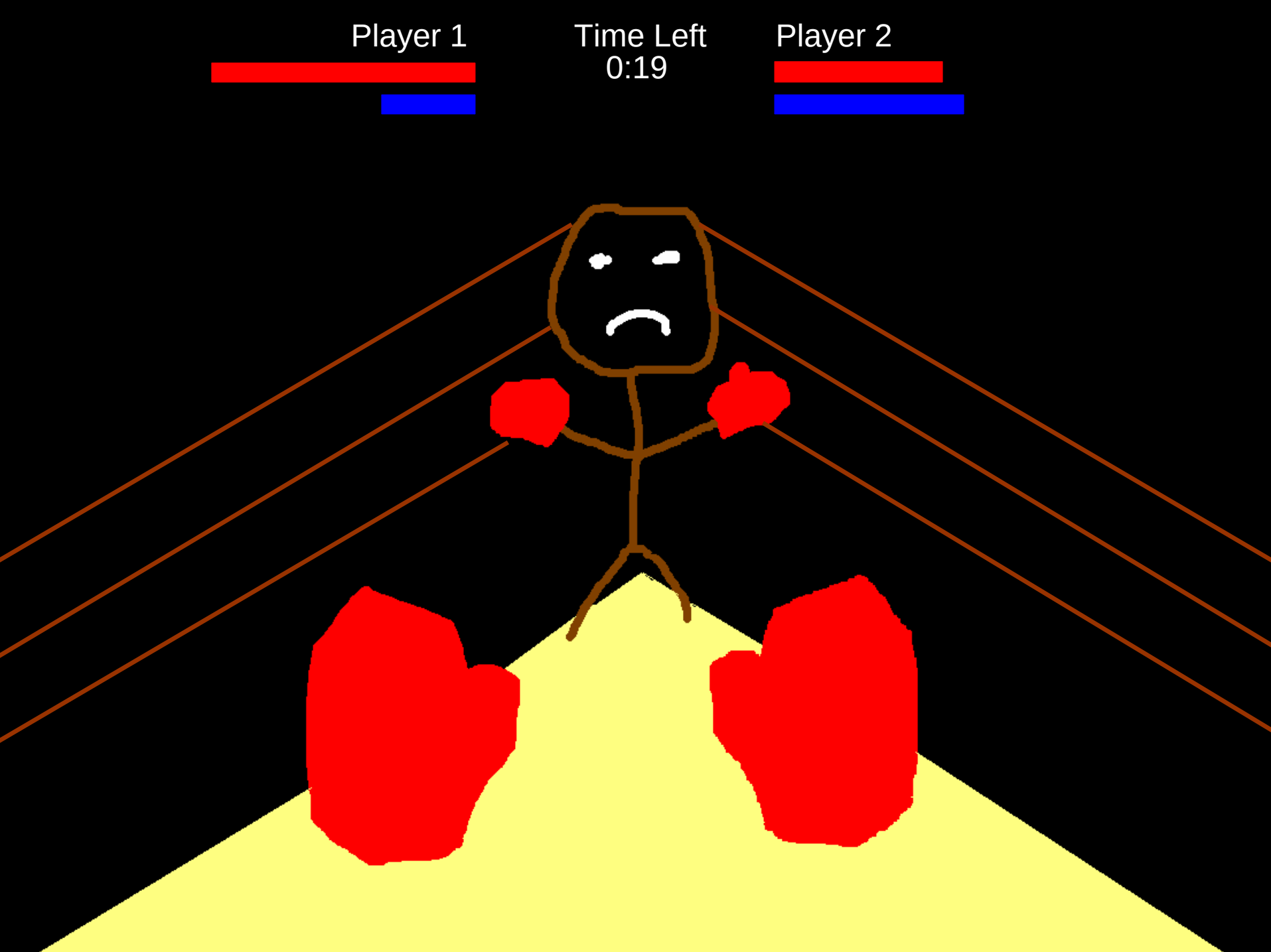
- Determine if each player is:
  - Standing
  - Blocking
  - Punching (and if the punch connects)
  - Recoiling from Punch
- Update:
  - Positions of hands and head
  - Picture of opponent
  - Life bars and Energy bars

Imaging Block Diagram



Audio Block Diagram




Player 1
Time Left
0:19
Player 2

Questions?