3D Pong

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Game Overview

- Game play similar to MIT Pong, but…
  - the objects have depth
  - the board can be rotated in 3D while the game is being played
- Inputs
  - Lab-4 Pong Inputs
  - 3D Trackball for Rotating the Board
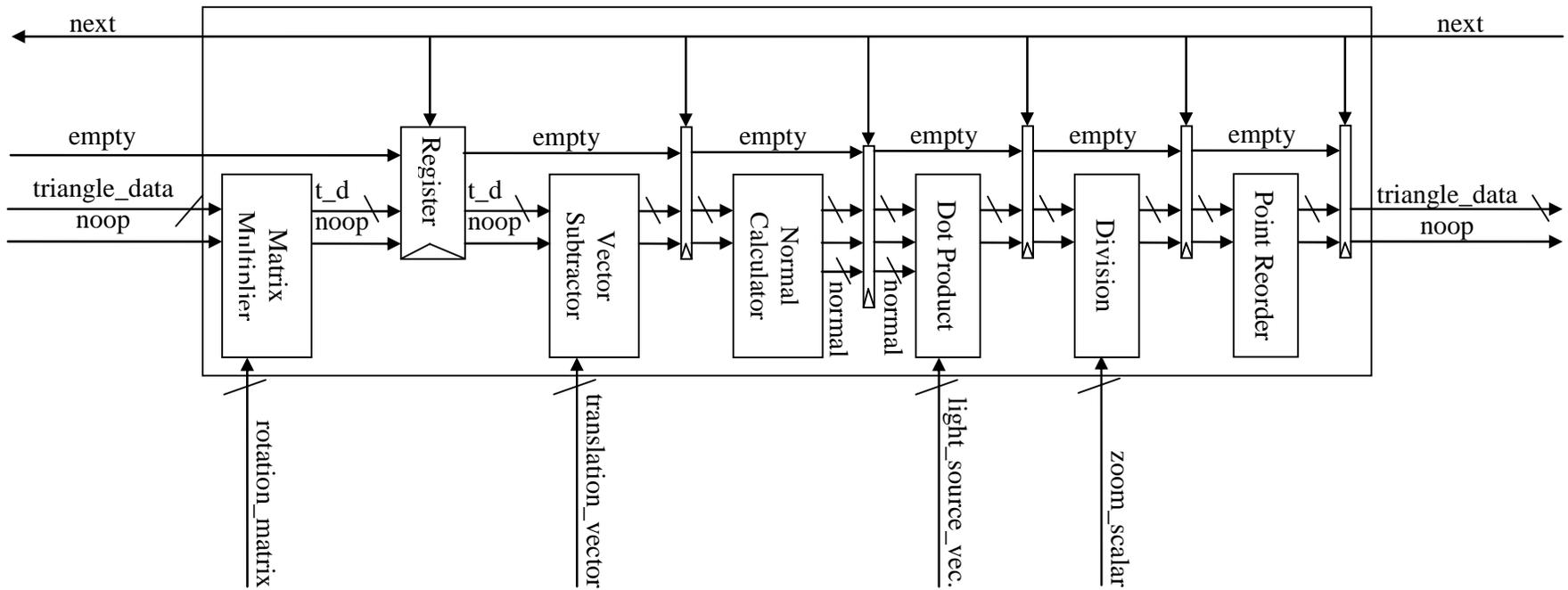- Arbitrary 3D Models in addition to 3D Pong

3D Renderer

- Arbitrary models composed of triangles in a 3D space

- Arbitrary Rotations and Translation

- Shaded using Flat Shading Model
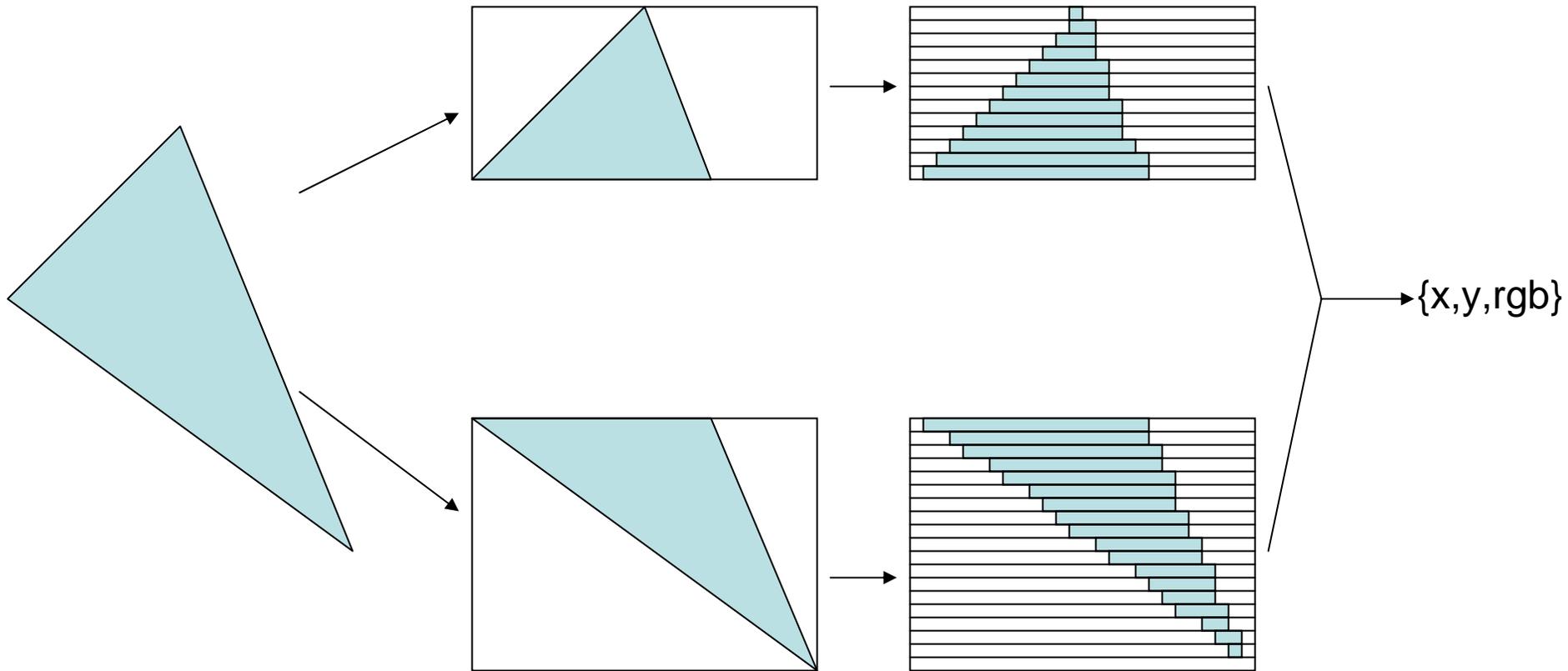
- Perspective Projection

Block Diagram
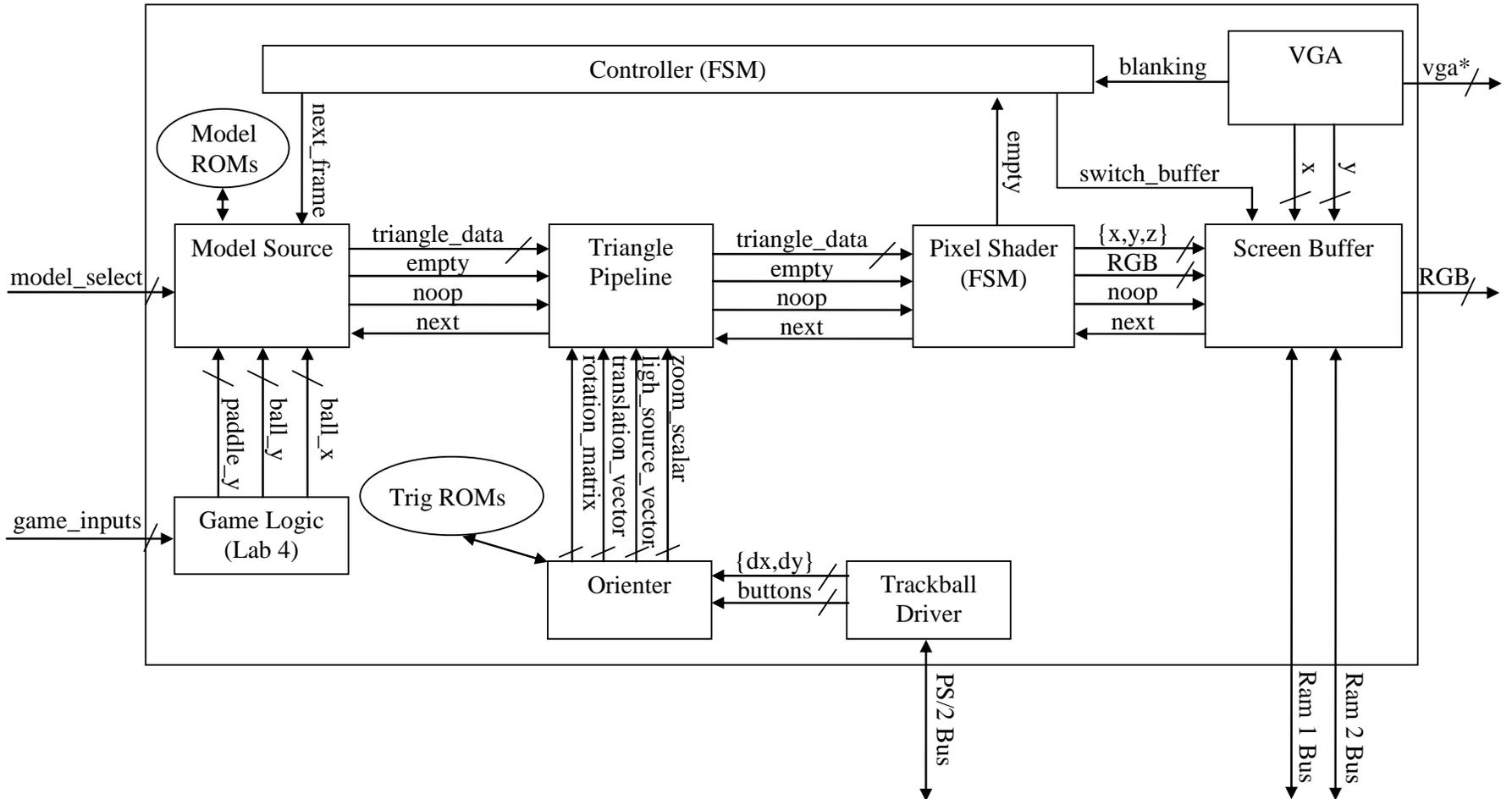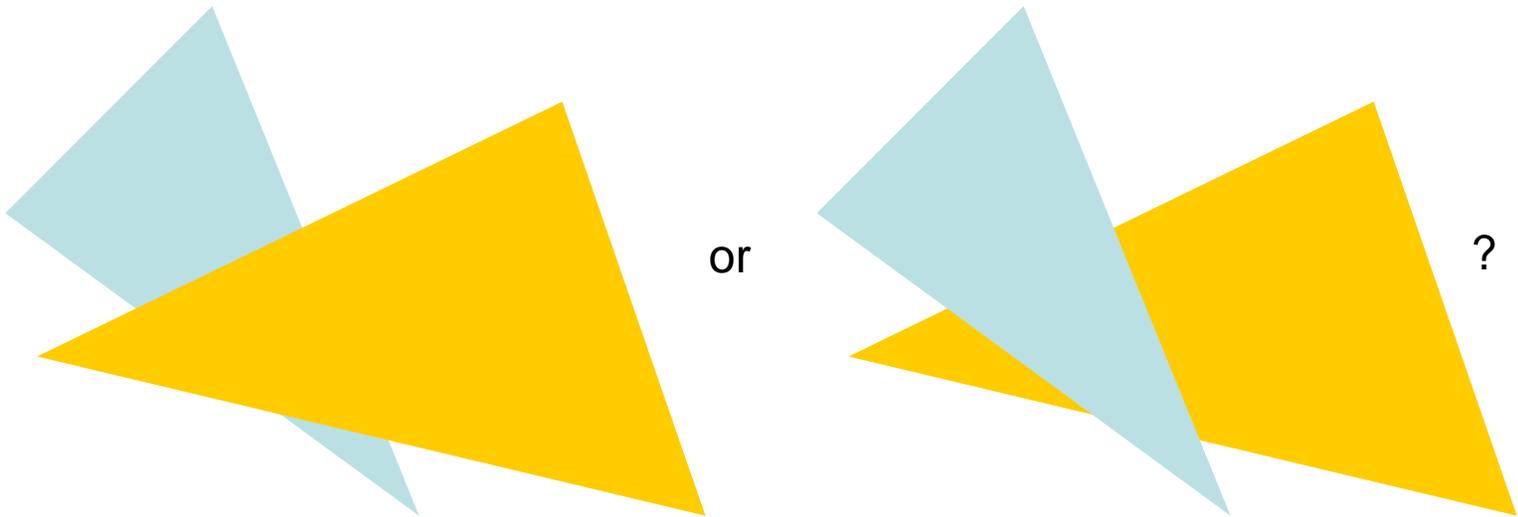
Closer Look: Triangle Pipeline

Legend: triangle_data = {a_x, a_y, a_z, b_x, b_y, b_z, c_x, c_y, c_z, rgb}

Closer Look: Triangle Shader

{x,y,rgb}

Closer Look: Z-Buffer

or

?

- •Buffer z-coordinate in addition to RGB for each pixel
- •Compare z-coordinates before storing a new pixel color

Questions?