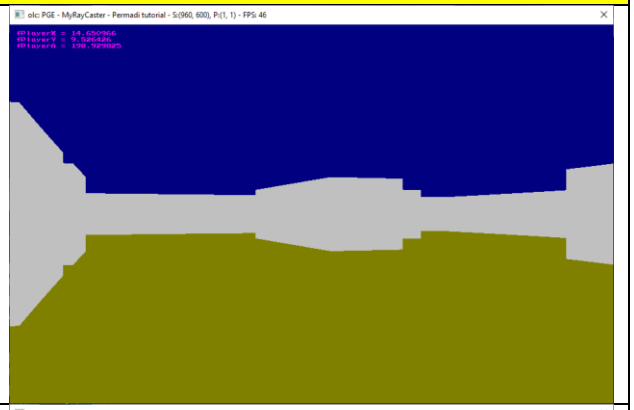
Raycasting implementations – Permadi tutorial

Joseph21, February 1, 2023

All source files on: https://github.com/Joseph21-6147/Raycasting-tutorial-series---Permadi-inspired

Nr	Permadi tutorial	Source file name	Subject	Preview
1	Parts 03-09 (&15)	• `main - part 09a (plain rendering, hor. motion, naive distance finding algo).cpp`	Non-textured rendering, horizontal motion, naïve distance finding	
2	Parts 03-09 (&15)	• `main - part 09b (plain rendering, hor. motion, DDA algo).cpp`	DDA implementation (instead of naïve distance finding)	

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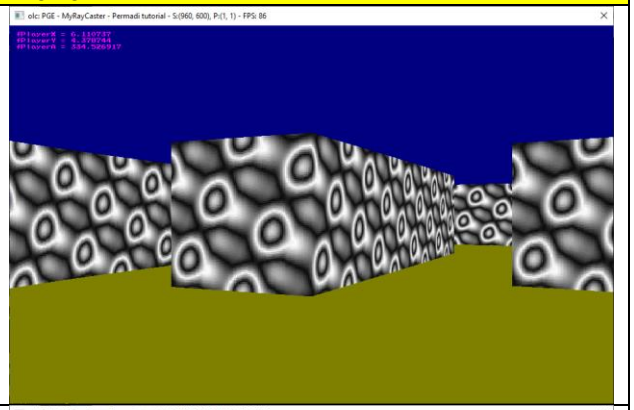
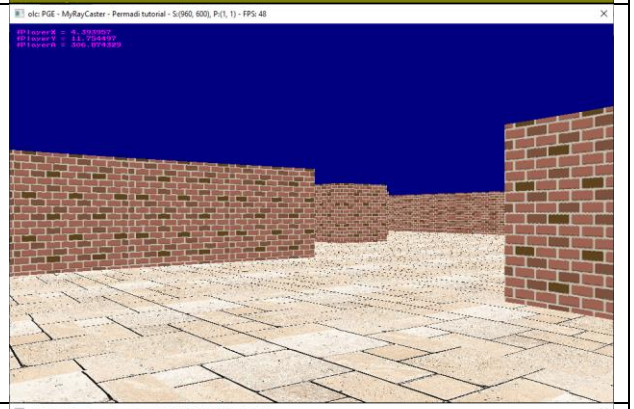
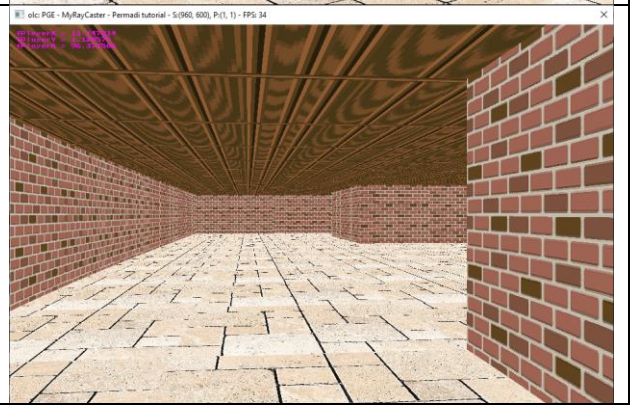
3	Part 10	• `main - part 10 (textured walls).cpp`	Added: Wall texturing	
4	Parts 11-12	• `main - part 12 (textured floor).cpp`	Added: Floor texturing	
5	Part 13	• `main - part 13 (textured ceiling).cpp`	Added: Ceiling texturing	

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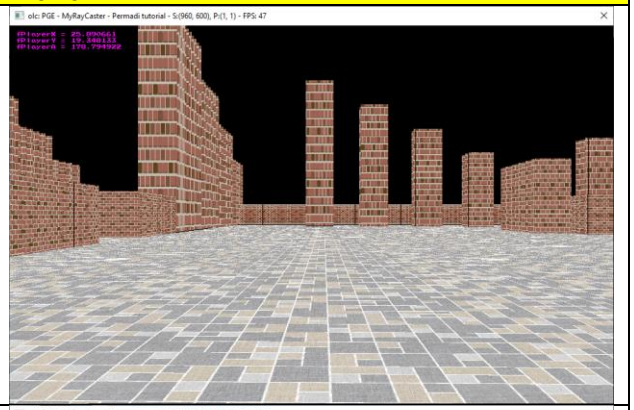
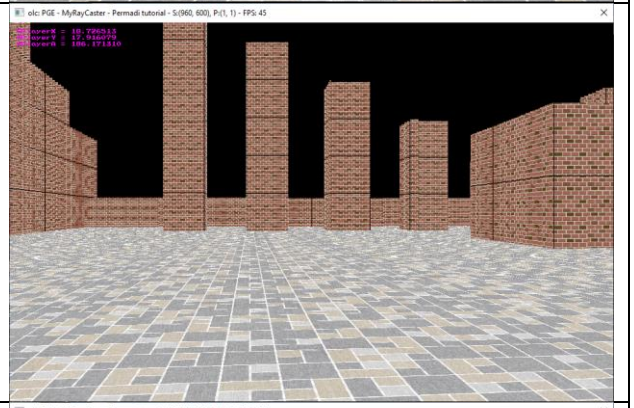
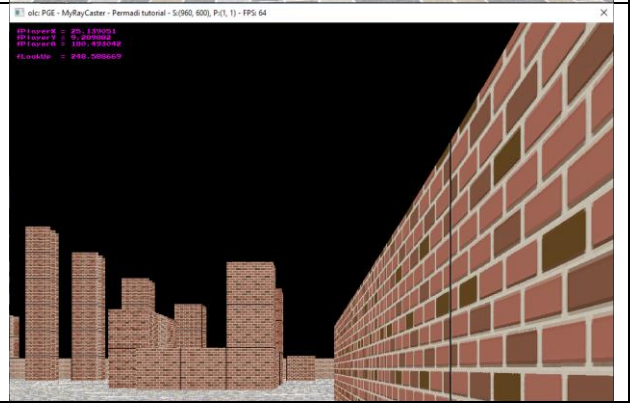
6	Part 14a	• `main - part 14a (variable height walls).cpp`	Added: Variable height walls	
7	Part 14b	• `main - part 14b (variable height walls - improved texturing).cpp`	Added: Improved wall texturing for variable height walls	
8	Part 16	• `main - part 16 (vertical motion - looking up and down).cpp`	Added: Effect to simulate looking up or down	

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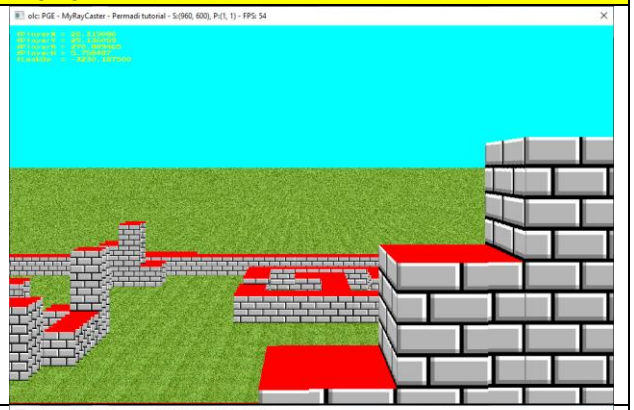
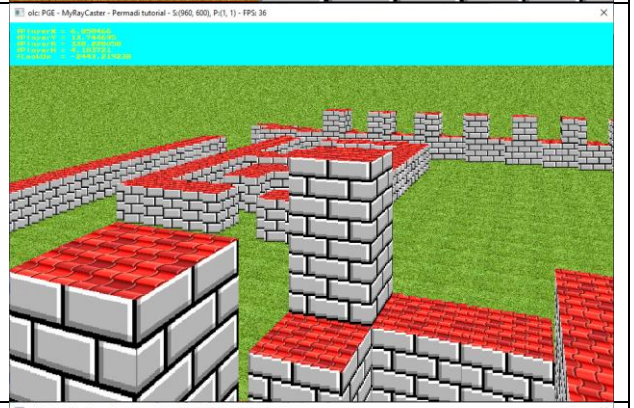
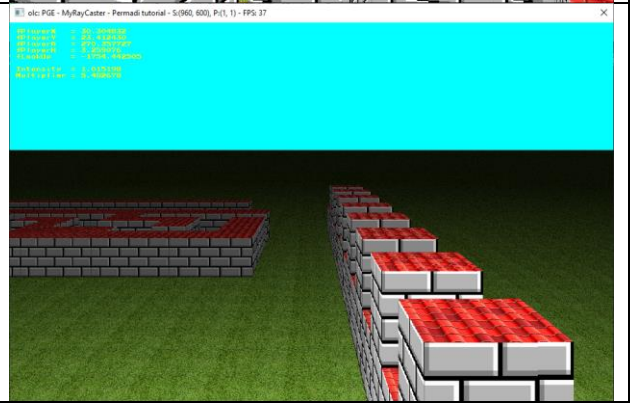
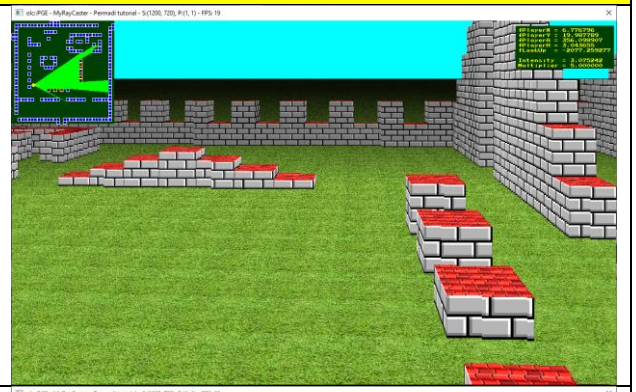
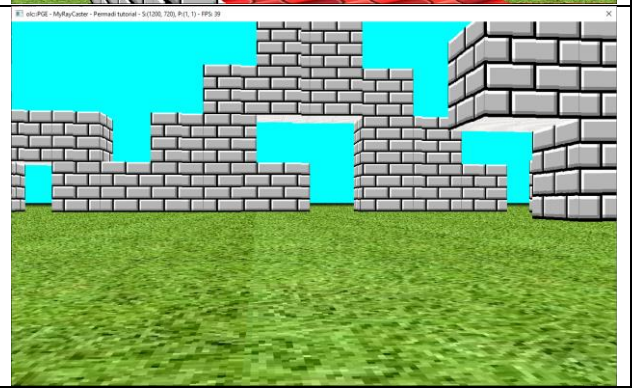
9	Part 17a	• `main - part 17a (flying and crouching).cpp`	Added: Code for flying and crouching of player, in combination with variable height walls.	
10	Part 17b	• `main - part 17b (textured roofs, optional mouse control).cpp`	Added: Roof texturing and optional mouse control	
11	Part 19	• `main - part 19 (shading - night effect).cpp`	Added: Simple form of distance shading	

Elaborations on the Permadi tutorial

Joseph21, April 22, 2023

I implemented and posted the Permadi based tutorial series in spring 2022. Currently I decided to elaborate on that series with some of my own creations:

Nr	Source file name	Subject	Preview
12	• main - part 20 (fractional wall heights).cpp	Experiment with walls that are ¼, ½, ¾ high – it's trivial to create walls with other fractions as well	
13	• main - part 21a (sprites - basic rendering).cpp • main - part 21b (sprites - with column based depth buffer).cpp • main - part 21c (sprites - painters algo).cpp • main - part 21d (sprites - looking and moving up and down).cpp • main - part 21e (sprites - randomly initialized).cpp • main - part 21f (demo version with 2D depthbuffer).cpp	Introduction of objects (sprites) using the technique of billboarding. These parts build up the functionality so that looking and moving up and down are supported in combination with (scaled) billboard rendering	
14	• main - part 22a (class RC_Map introduced).cpp • main - part 22b (map representation adapted).cpp • main - part 22c (working version, bugs in roof ceil texturing).cpp • main - part 22d (texturing and CD fixed).cpp	Introduction of gaps/holes in the walls, overhanging and floating blocks	

Nr	Source file name	Subject	Preview
15	• main - part 23a (class RC_Objects introduced).cpp • map_demo - part 23a.h • main - part 23b (block and face differentiated texturing).cpp • map_10x10 - part 23b.h • main - part 23c (face hit detection added in DDA algo).cpp • map_16x16 - part 23c.h • main - part 23d (see-through windows and doors).cpp • map_16x16 - part 23d.h • main - part 23e (door gate animation).cpp • map_16x16 - part 23e.h • main - part 23f (refactored block structure in classes).cpp • main - part 23g (refactored blocks in faces as well).cpp • map_16x16 - part 23g.h	See-through (transparent) texturing (for windows and doors, holes in roofs,etc), animated textures (for doors etc), texturing differentiated per block face (east, north, west, south, top, bottom)