

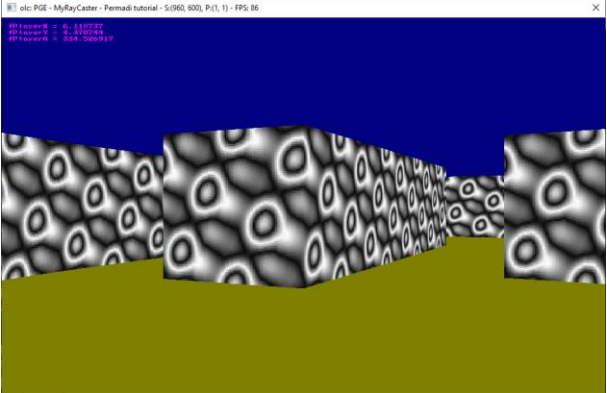
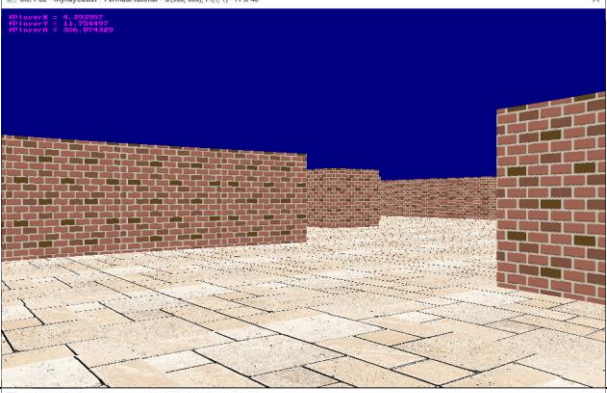
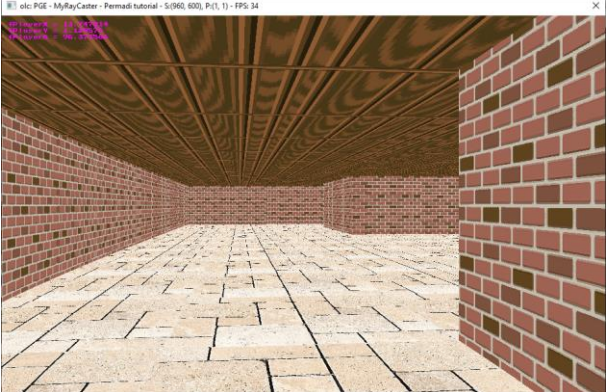


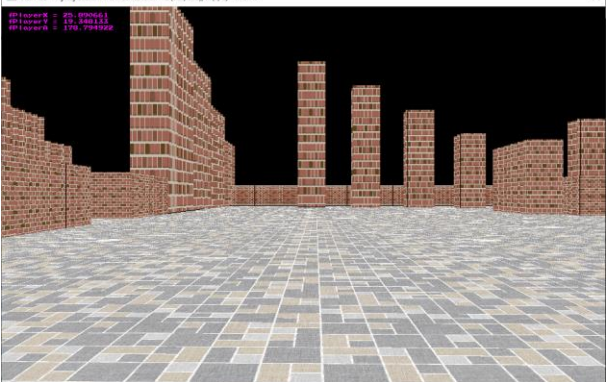


Raycasting implementations – Permadi tutorial

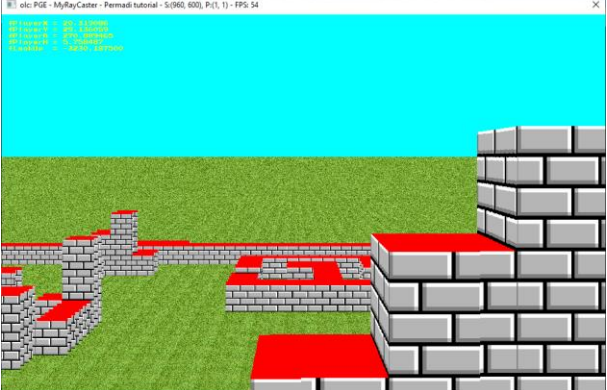

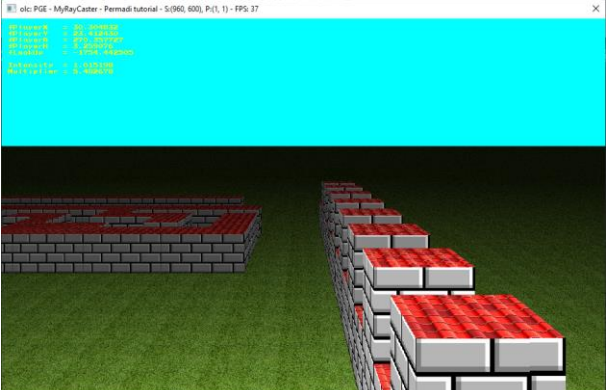
Joseph21, February 1, 2023

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)	<ul style="list-style-type: none">main - part 09a (plain rendering, hor. motion, naive distance finding algo).cpp	Non-textured rendering, horizontal motion, naive distance finding	
2	Parts 03-09 (&15)	<ul style="list-style-type: none">main - part 09b (plain rendering, hor. motion, DDA algo).cpp	DDA implementation (instead of naive distance finding)	

Nr	Permadi tutorial	Source file name	Subject	Preview
3	Part 10	<ul style="list-style-type: none"> main - part 10 (textured walls).cpp 	Added: Wall texturing	 <p>The screenshot shows a 3D environment with a green floor and a blue sky. A wall with a black and white pattern is visible. The window title is "oic: PGE - MyRayCaster - Permadi tutorial - S(960, 600), P(1, 1) - FPS: 66".</p>
4	Parts 11-12	<ul style="list-style-type: none"> main - part 12 (textured floor).cpp 	Added: Floor texturing	 <p>The screenshot shows a 3D environment with a brick floor and a brick wall. The sky is blue. The window title is "oic: PGE - MyRayCaster - Permadi tutorial - S(960, 600), P(1, 1) - FPS: 48".</p>
5	Part 13	<ul style="list-style-type: none"> main - part 13 (textured ceiling).cpp 	Added: Ceiling texturing	 <p>The screenshot shows a 3D environment with a brick floor and a brick wall. The ceiling is textured with a brick pattern. The window title is "oic: PGE - MyRayCaster - Permadi tutorial - S(960, 600), P(1, 1) - FPS: 34".</p>

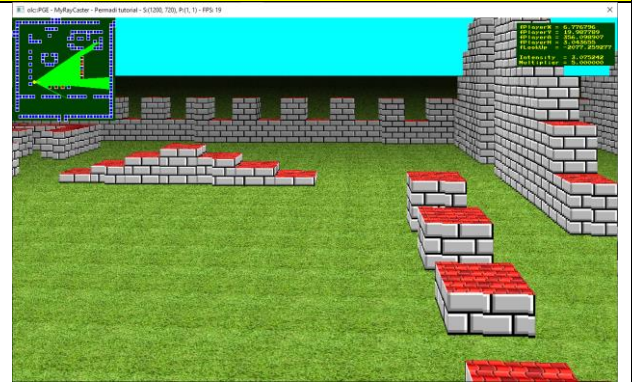

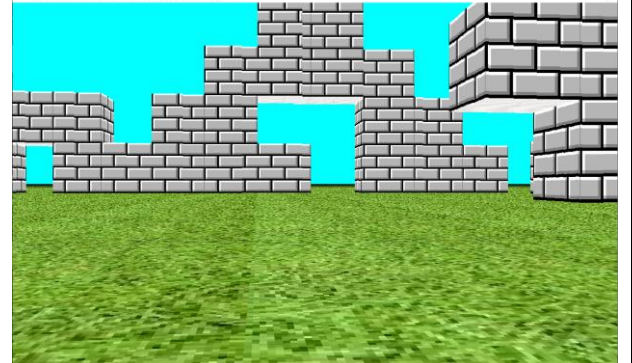
Nr	Permadi tutorial	Source file name	Subject	Preview
6	Part 14a	<ul style="list-style-type: none"> main - part 14a (variable height walls).cpp 	Added: Variable height walls	
7	Part 14b	<ul style="list-style-type: none"> main - part 14b (variable height walls - improved texturing).cpp 	Added: Improved wall texturing for variable height walls	
8	Part 16	<ul style="list-style-type: none"> main - part 16 (vertical motion - looking up and down).cpp 	Added: Effect to simulate looking up or down	

Nr	Permadi tutorial	Source file name	Subject	Preview
9	Part 17a	<ul style="list-style-type: none"> main - part 17a (flying and crouching).cpp 	Added: Code for flying and crouching of player, in combination with variable height walls.	
10	Part 17b	<ul style="list-style-type: none"> main - part 17b (textured roofs, optional mouse control).cpp 	Added: Roof texturing and optional mouse control	
11	Part 19	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none">main - part 20 (fractional wall heights).cpp	Experiment with walls that are $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ high – it's trivial to create walls with other fractions as well	
13	<ul style="list-style-type: none">main - part 21a (sprites - basic rendering).cppmain - part 21b (sprites - with column based depth buffer).cppmain - part 21c (sprites - painters algo).cppmain - part 21d (sprites - looking and moving up and down).cppmain - part 21e (sprites - randomly initialized).cppmain - part 21f (demo version with 2D depthbuffer).cpp	Introduction of objects (sprites) using the technique of billboard rendering. These parts build up the functionality so that looking and moving up and down are supported in combination with (scaled) billboard rendering	
14	<ul style="list-style-type: none">main - part 22a (class RC_Map introduced).cppmain - part 22b (map representation adapted).cppmain - part 22c (working version, bugs in roof ceil texturing).cppmain - 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	<ul style="list-style-type: none"> • 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)	<p>The screenshot shows a 3D game engine window titled "MFC - MyRayCaster - Permade tutorial - 51200, 600, P43, 11 - FPS: 32". The main view displays a 3D scene with a stone wall made of textured blocks. A transparent window is visible in the wall, showing a blue sky and green landscape. A character with green hair and a red dress stands in the foreground on a grassy field. The top-left corner shows a small 2D map. The top-right corner displays a console window with various statistics and debug information.</p>