

PHASED

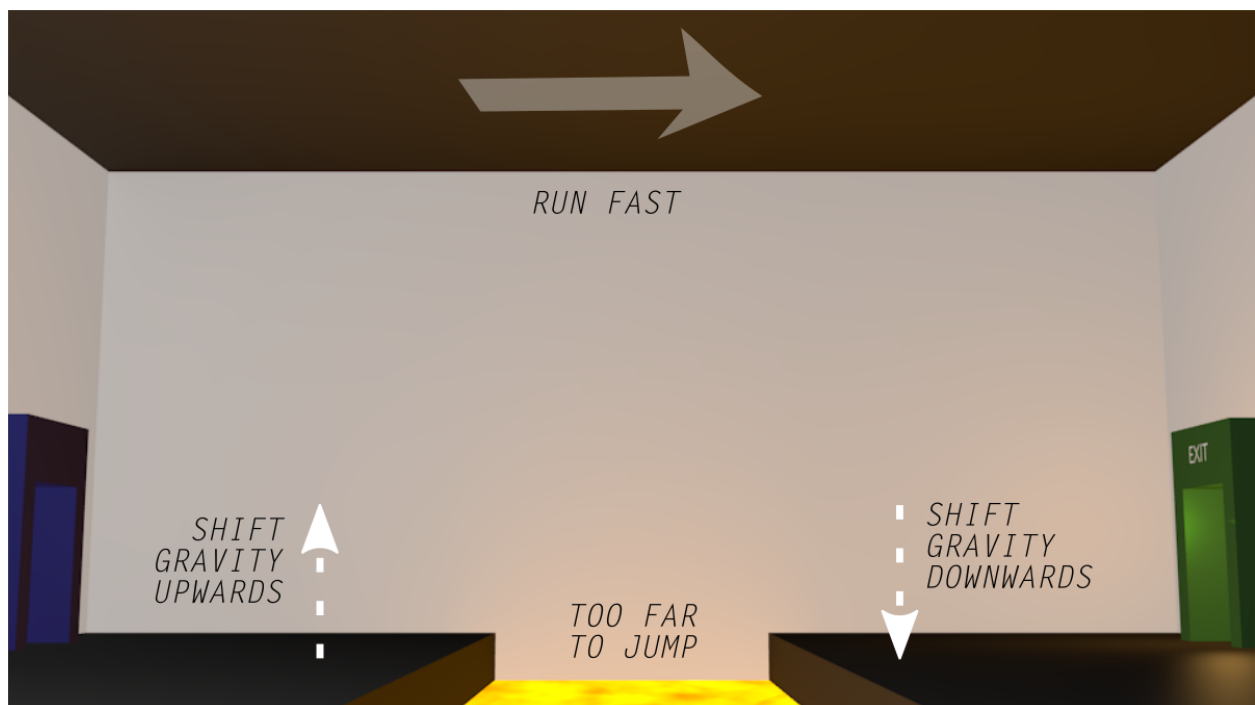
Project 4 Proposal

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Phased is a Portal-inspired, first-person, puzzle-platformer, where the goal is to get out unscathed from a underground testing track developed secretly by crazy physicists.

The testing chambers were designs to experiment with the GWEE (Graviton Wave-Energy Emitters), large plates that can emit gravity waves out of phase with the Earth's, causing an apparent change in the direction of gravity in a region. The GWEEs can be controlled using the hand-held Phasor (which will stand for something). By simply firing the device at a particular direction, all GWEEs in the area will direct gravity in that direction in the region.

Using this mechanic, the protagonist will be able to get out of tricky situations, such as this one:



How to escape the chamber. (The lava could be replaced with an bottomless pit.)

There will be multiple levels, rising in difficulty, that test the player's ability to think *inside the chamber*, stomach some bad puns/portal references, and reach the exit.

The Chambers

To open the exit, the player must not-only reach it, but also satisfy some condition. Depending on the chamber, this could be: having obtained a key to open the door, having pressed a button, having a cube resting on a large button, having the final chamber's gravity in a specific orientation, etc. Once the condition is met, the exit door will unlock and open. All chambers will be quite bright, with at least hemisphere lights, and shadows where appropriate.

Stretch goals: add interesting static environment elements, like light fixtures, panels, pipes, valves, etc.

Gameplay

The game will use a first-person camera: mouse-move to look around, W-A-S-D to walk around, SPACE to jump. In the player's possession will be the Phasor, and possible keys, and they can use the mouse scroll wheel to switch between them. A 2D overlay will display the current selection, the other possible objects, as well as a crosshair. Pressing ESC will pause the game and bring up the menu, where the player can view their progress, restart the current chamber, adjust settings, and return to the main menu. Currently, the goal is to have 5 chambers, the first 4 introducing a game mechanic, and the final one putting them together. The game is complete when the final chamber is solved, and the protagonist can make their way to the surface.

Textures and Shaders

All walls and floors, keys, cubes and buttons will be textured. The walls and floors will also have bump-mapping. If lava is used, a custom shader will be written for it. *Stretch goals:* brief screen distortion effect when the Phasor is used, indicating the direction of gravity; force-fields that defy the gravity change and will also have a distortion shader.

Physics Engine

The game will have a custom physics engine (called Physed) to deal with the gravity, forces and collisions in the game. The player and certain puzzle elements (like cubes) will be dynamic rigid bodies, while most of the chambers will be static rigid bodies or planes. *Stretch goals:* include a particle system for certain chamber environment effects (like fire or electrical sparks).