

COMP3016 Immersive Game Technologies

CW1 Idea Proposal Document

Working Title

B-Grid

Overview

The game will be a grid-based puzzle game, taking inspiration from B-Cubed and Snake. The player must navigate a cursor-square across the grid to reach a level's endpoint, crossing each square off of the board exactly and only once without overlap. This pushes the player to plan their route or to experiment with multiple attempts.

Mechanics

Each level should be created from a 2D array loaded from an external file (``fstream``). Tiles can represent empty space, "walkable" tiles, start and end points, and non-walkable obstacles. The player should control their cursor-square using keyboard input (WASD or arrow keys?), one tile per keypress.

Player movement leaves behind a "cable" showing their previous path. The wires cannot cross (similar mechanic to Snake).

An invalid move, such as off of the stage or crossing an existing cable result in the players death.

Cables should not be "rewound" once placed. Retrying a level must be initiated by death to reset that stage.

Decision on maximum grid size will have to be made based on technical implementation.

Dynamics

The player experiments with different wiring paths in order to complete a path between the starting point and the goal/endpoint of a level.

The dynamic loading of a level would allow for testing of file handling, resource allocation and memory management, with the use of exception handling.

Multiple levels with varying layouts would ensure replayability. Should levels be in order of perceived difficulty or random order (user testing feedback could be useful here)?

Aesthetics

A simple and minimal design, using coloured squares for nodes and wires, taking inspiration from B-Cubes visual style. Research into coursework-accepted frameworks needed.

Extensibility

Additional "special" tiles could be added, such as tiles that can be crossed a set number of times.

Custom user created levels.

Additional Notes

As I am a Software Engineering path student, not a Game Development student, my game design will have to be simple! Instead, I would prefer to focus on the technical implementation and robust C++ programming rather than on creative design choices such as narrative and storytelling. The game should instead focus on safe File I/O and runtime object management.