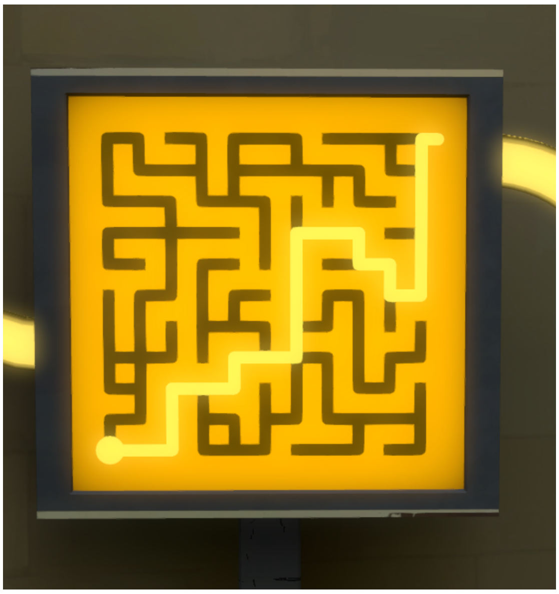
# Game Design Document - Puzzle Mechanics

## Objective

Implement puzzle mechanics inspired by "The Witness" within the Unity engine, tailored for mobile devices with touch screen input. The focus is on grid-based pathfinding puzzles that progressively increase in complexity.



## Touch Input Handling

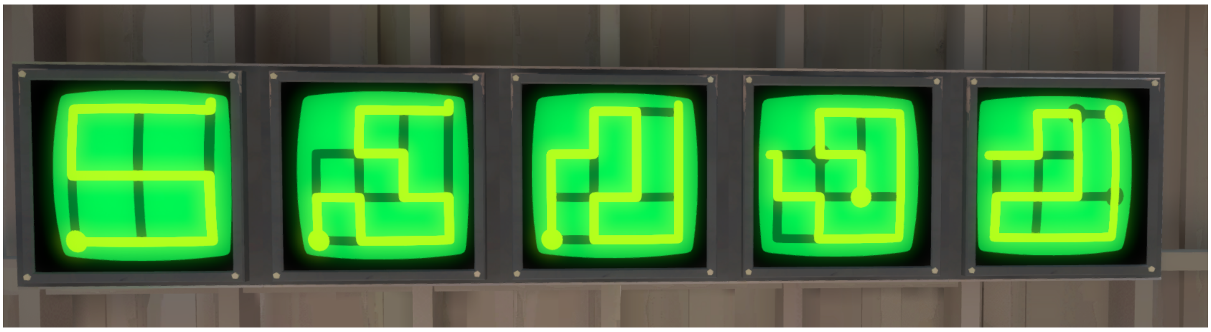
- Implement touch input for drawing paths on the grid.
- Ensure responsive feedback to user gestures on the touch screen.

## Pathfinding Logic

- Paths must connect a designated start point to an end point using touch gestures.

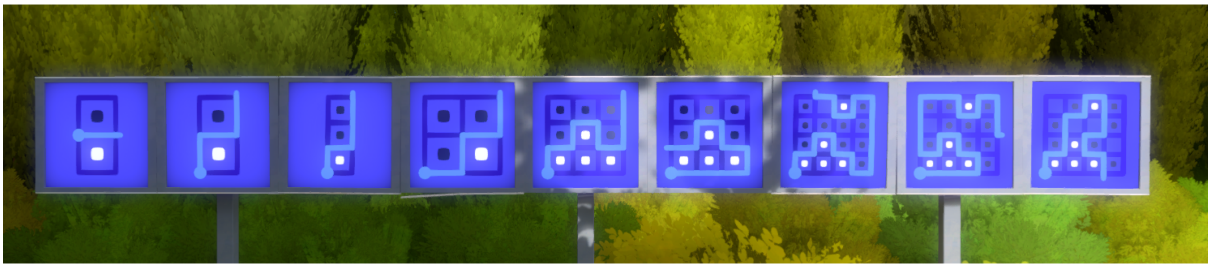
## Progressive Complexity

- Puzzles can have one or more paths  to be solved.
- Design a system to gradually introduce new puzzle elements using touch-based gestures.
- Graduation can include multiple start/end points, coloured paths and environmental cues for example objects that must be collected by the user to complete the path



## Learning Curve

- Implement a learning curve where early puzzles serve as implicit tutorials for touch-based interactions.
- Teach players the mechanics without explicit instructions through touch gestures



## Save System

- Develop a system to save puzzle progress.
- when the puzzle is completed and the artwork is unveiled, it will no longer be possible to access the puzzle scene
- Allow players to resume unsolved puzzles without loss of data. Completed puzzles remain saved even when closing the application (puzzles are complete when all puzzles in the scene

have been solved after being completed unlock the artwork hidden by the curtain)

### Unity Cinemachine

- Employ Unity's Cinemachine to create a dynamic camera system suitable for mobile devices.
- Simulate the feeling of exploration by moving the camera along predefined tracks connecting different puzzle locations based on touch input.

### Level Design Tools

- Create touch-friendly tools for efficient level design.
- Enable designers to craft new puzzles and integrate them into the game world with consideration for mobile touch input.

## Player Interaction & Puzzle Type

**Touch Drawing**

- **Implementation**: Enable the player to draw a line on the screen by moving their finger.

**Line Persistence**

- **Implementation:** Maintain the drawn line's persistence until the player completes or resets the puzzle.

**Continued Path Tracing**

- **Implementation:** Should the player lift their finger from the device during a puzzle-solving moment, the traced path remains active.

**Reset Mechanism**

- **Implementation:** Implement a reset mechanism by allowing the player to tap on the puzzle's starting point. On tapping, the drawn path resets, providing a seamless way to retry the puzzle.

## Puzzle Type 1: Classic Maze

To complete the level, the player must exit the maze.

**Grid Representation**

- **Implementation:** Use Unity's GameObject system to represent the maze grid. Each cell can be instantiated as a GameObject, forming the maze structure.

**Start and End Points**

- **Implementation:** Define several start and end points within the maze. the correct path always remains one.

## Puzzle Type 2: Grid Collection

To complete the level, the player must exit the maze by collecting all the objects placed on the grid.

**Grid Generation**

- **Implementation:** Create a grid where you can move between points of interest to collect objects to complete the puzzle.

**Object Placement**

- **Implementation:** Define a specific exit point on the grid. The player must collect all objects and navigate to this exit point to complete the puzzle.

# ART Elements & Sequence

## Canvas and Brush Strokes

**Grid Alignment:** Each artwork sprite, representing the labyrinth puzzles, should adhere to a grid-based design.

**Pixel Consistency:** Maintain pixel consistency within the grid, promoting a visually cohesive and aesthetically pleasing puzzle-solving experience.

**Painter's Canvas**

- **Implementation:** The puzzle is set on a painter's canvas, elegantly placed on a wooden easel. The canvas serves as the foundation for maze exploration or object collection.

**Brush Stroke Lines**

- **Implementation:** The maze pathways are depicted as bold black brush strokes, creating a visually appealing contrast on the canvas. These strokes form the maze structure for players to navigate.

**Player's Traced Path**

- **Implementation:** As the player traces a path, it leaves behind vibrant green brush strokes, simulating the act of painting. This visual representation adds an artistic flair to the completion of the puzzle.

## Interactive Artwork and Puzzle Sequences

- **Interaction with Covered Artwork:** Unveiling the Puzzle Scene, the player taps on the concealed artwork, covered by a red curtain, initiating a gradual zoom towards the artwork.

- **Smooth Scene Transition:** The scene transition is gentle and fluid, creating a smooth shift from the museum setting to the puzzle-solving environment. This transition mimics the sensation of being drawn into the artwork.

## Puzzle-Solving Sequence: 4 Puzzles per Artwork

- **Puzzle Setup:** Each artwork conceals a puzzle environment consisting of four maze puzzles. The player is placed in front of the first puzzle, resembling a labyrinth, set on a painter's canvas mounted on a wooden pedestal.

- **Puzzle Completion:** Upon successfully completing a maze puzzle, the player experiences a fluid camera movement guided by anchoring points, transporting them to the next puzzle within the artwork.

- **Sequential Puzzle Flow**: The completion of each puzzle triggers a gentle movement to the next puzzle, creating a seamless and engaging progression through the concealed artwork.

- **Completion of Four Puzzles:** Upon solving all four puzzles within an artwork, there is a serene scene transition. The player returns to the museum setting, positioned in front of the now uncovered artwork.

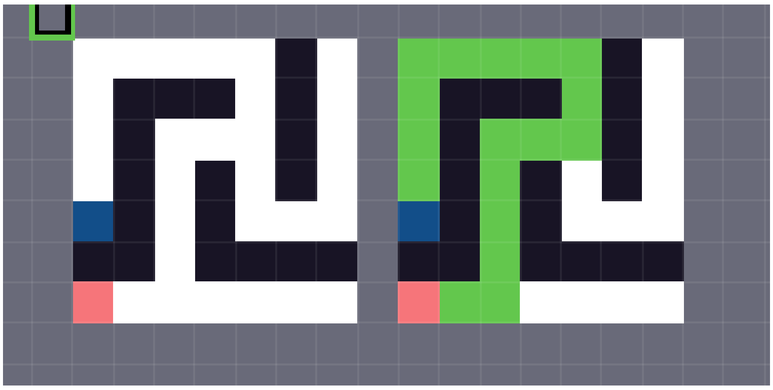
### Unveiling of Artwork

**Return to Museum Setting:** The player stands before the red curtain, now open, and gradually fading away, allowing a clear view of the concealed artwork.

**Artwork Description:** As the red curtain vanishes, the artwork is unveiled, accompanied by a brief description providing context and details about the masterpiece.

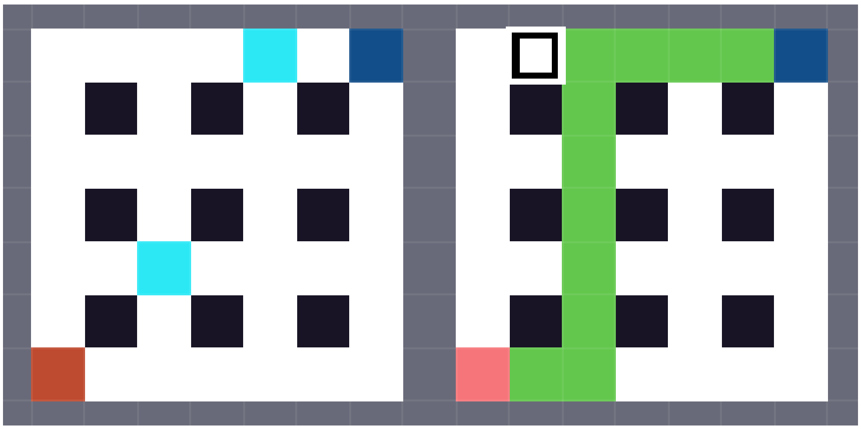
## Puzzle Level Design Index

### Classic Maze



- Black = Walls
- Orange = Start
- Blue = End
- Green = Pattern

### Grid Collection



- Black = Walls
- Orange = Start
- Blue = End
- Green = Pattern
- Light Blue = Object

[Maze Reference]