

## Easy Map Concept

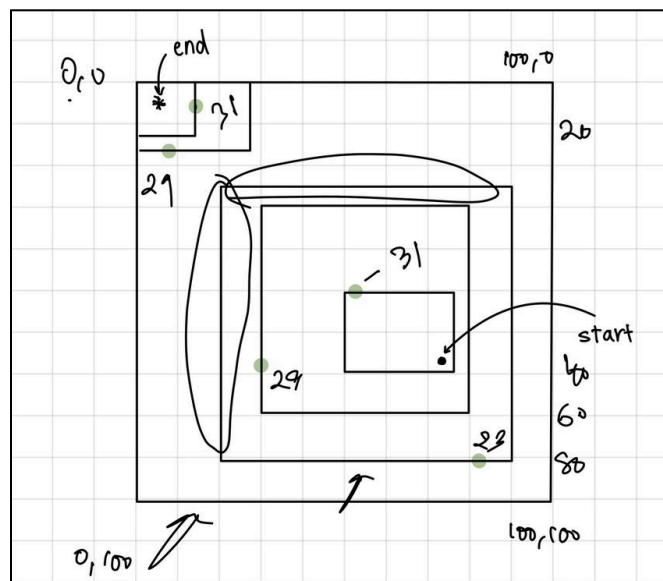
The easy map is just a regular randomly generated map with  $L$  set to some small number (such as 2). The start position will be located close to the target position to reduce the need for extensive exploration and increase the likelihood of the drone picking up the location of the target.

## Hard Map Concept

The hard map is designed with a series of concentric rectangles, each representing a layer of the maze. Every layer has walls with a single doorway that serves as the only exit to the next outer layer, creating a sequential, multi-layered structure. This configuration forces the player to navigate through each layer one at a time, progressively moving outward.

Key features:

- **Concentric Layers:** The maze consists of multiple nested rectangular layers, each encapsulating the previous one. The player must pass through each layer to progress.
- **Single Doorway Per Layer:** Each layer includes one doorway, randomly positioned along the walls, ensuring a valid path through the maze. These doorways are the only points of entry to the next layer, which adds to the navigational challenge.
- **Positioning:** The starting point is located at the innermost layer, while the target is positioned at the outermost layer, creating a clear goal of moving from the center outward.
- **Variable Door Frequencies:** Doorways operate on distinct timing loops, with frequencies ranging from  $n=2$  to higher values, increasing in complexity as the player moves outward. This requires precise timing and planning to navigate through the doors when they are open.
- **Navigational Challenge:** The primary challenge in this map is to carefully synchronize movements with the timing of the door openings. Players must identify the doorways



and time their progress accurately to move through the layers without unnecessary delays.

## Final Hard Map Visualised

