

Shifted Space: a multi-objective game creation tools

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Overview

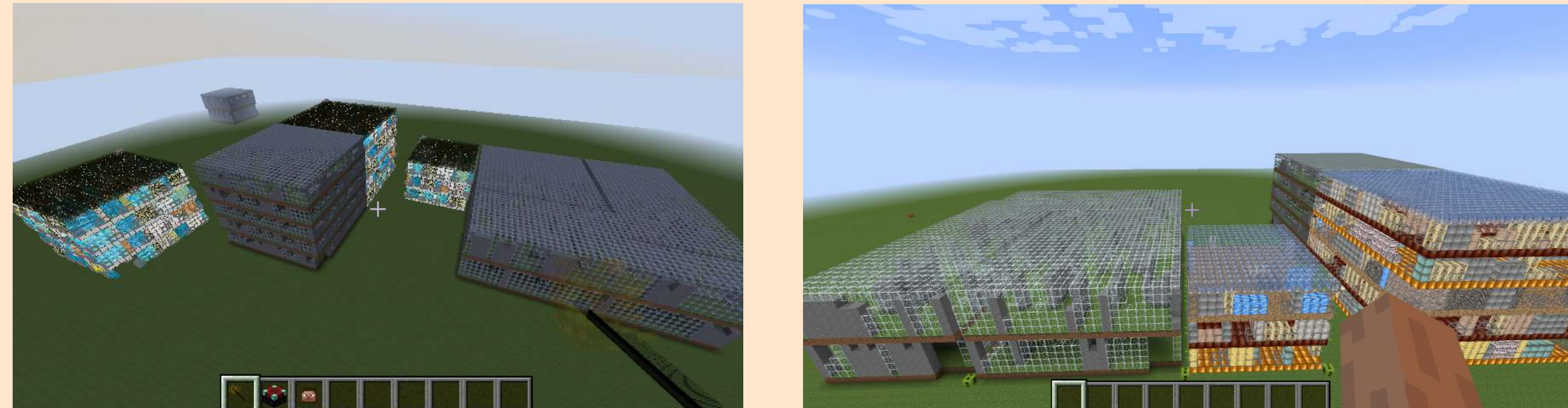
Various modules have been built for Minecraft platform; however, only a few offer flexible programmable interface. This project aims to develop a set of tools and scripts, which allows one to create customized blocks and import them easily for in-game generation. Unlike other modules, with our tools, it is possible to create complex structure and modify it in-game easily. As a demonstration, we create a game illustrate a famous graph theory problem.

Game creation tools

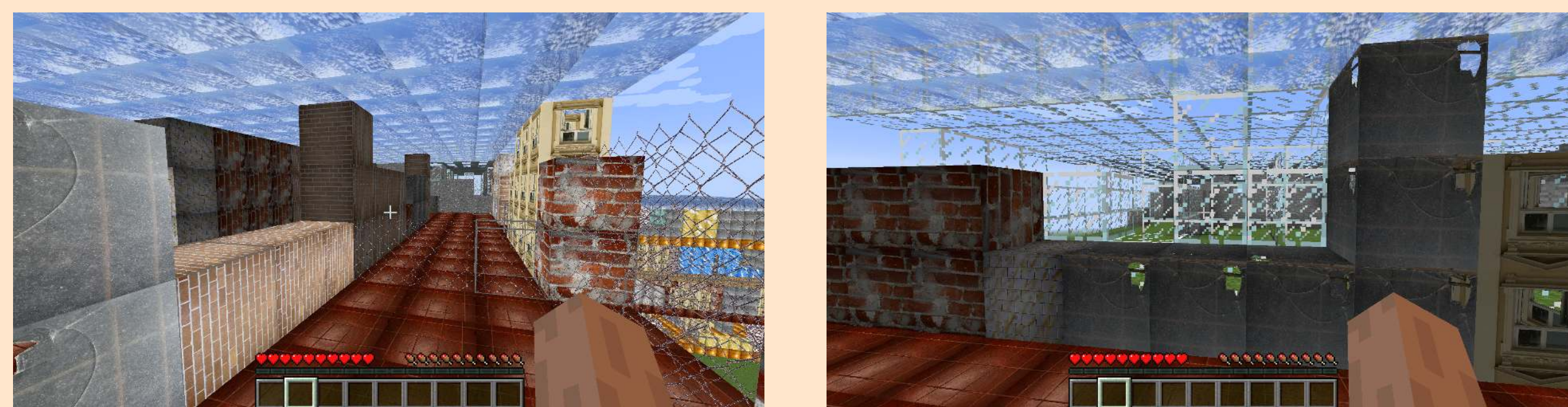
The maze auto-generation interface:



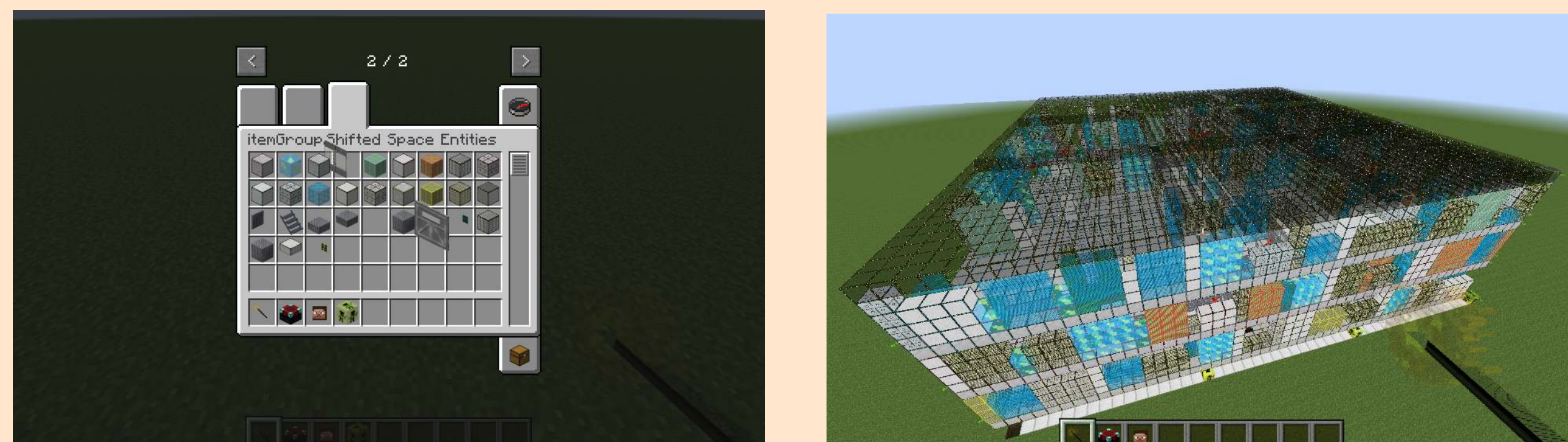
Buildings with varying internal structures can be made easily.



They are built inter-connected. You can jump to the other buildings!



We replaced standard minecraft by our own blocks and textures:



Software Dependencies

The following are used for the hosting server:

- SageMath 6 or above
- Java 7 or above
- Minecraft 1.7
- Minecraft Forge
- Aurora Mod

Client requirements:

- Minecraft client

Optional (Recommended):

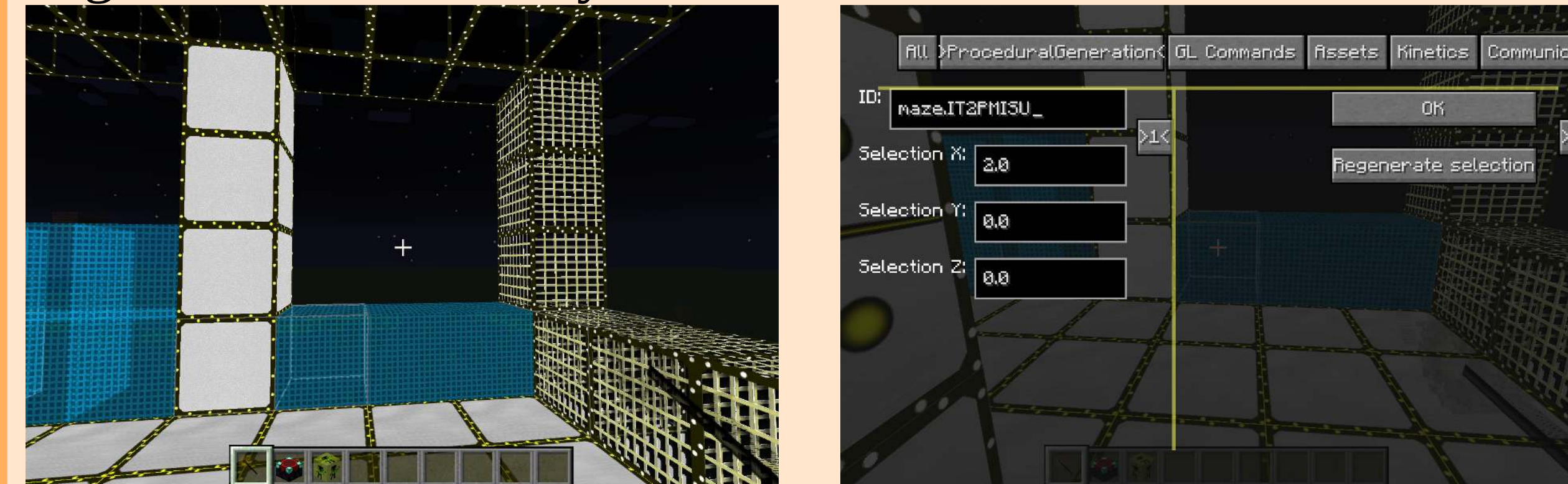
- 3D glasses

Development Screenshot

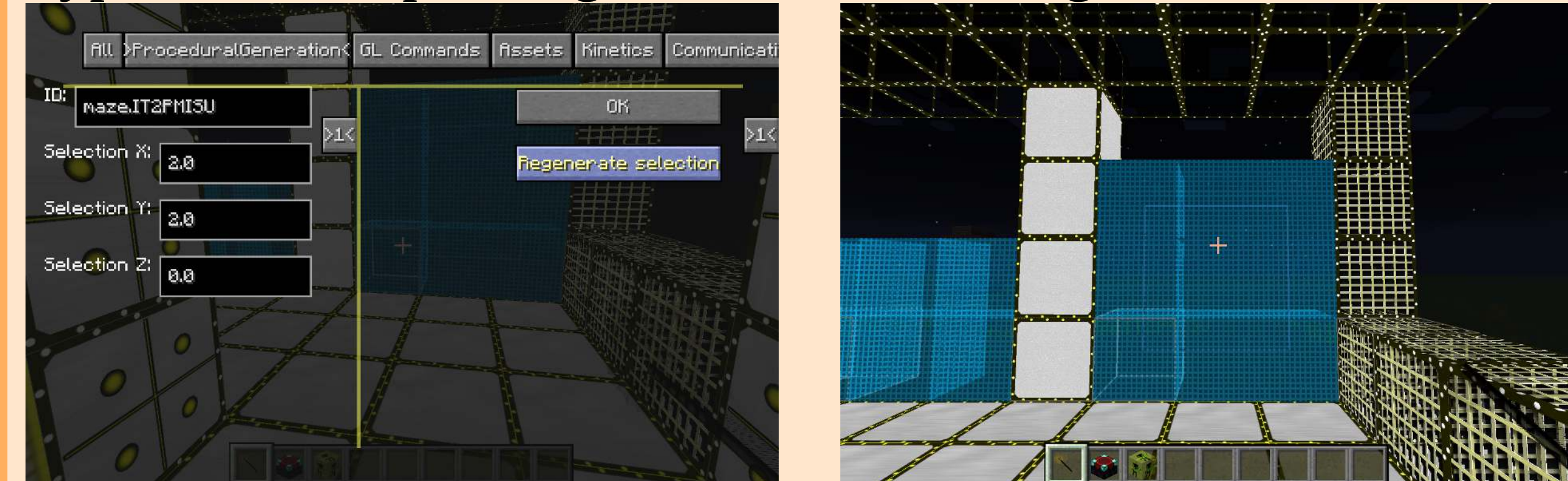
Resizable wall:

Walls can be resize by specifying the dimensions:

Right click the walls by the Dev Tool:

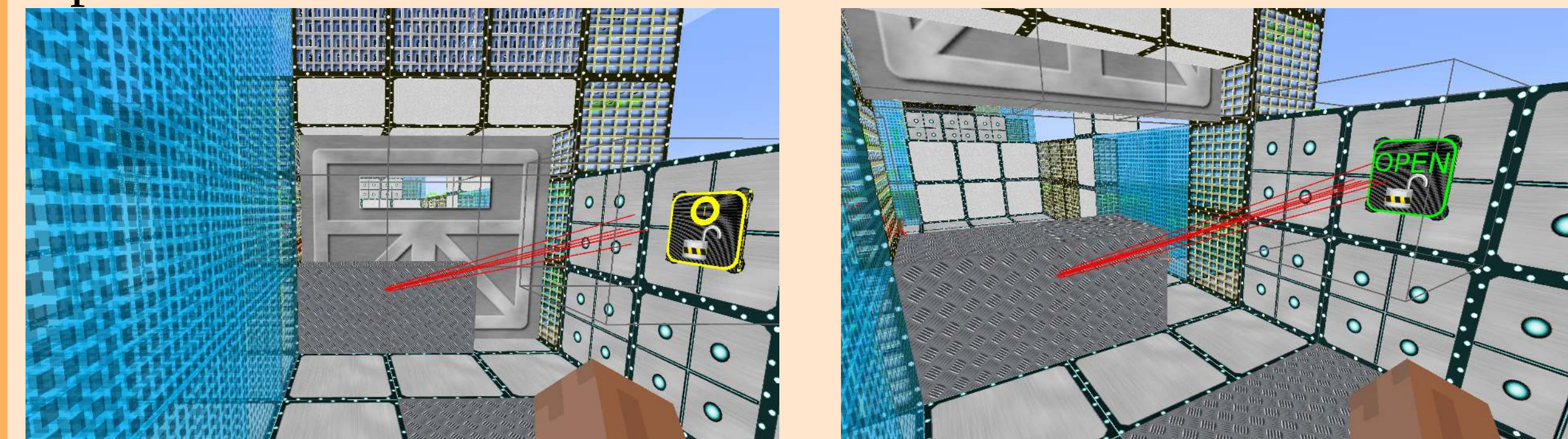


Type the corresponding dimensions and regnerate:



One-way door:

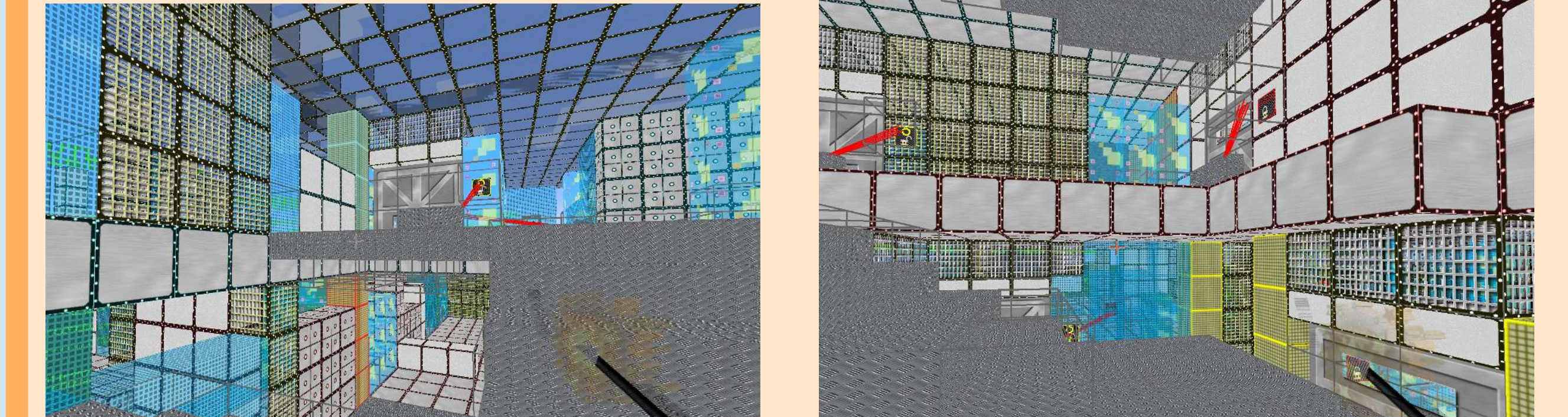
Open it from one side and lock it forever from the other side.



Demo-game

As an illustration of our tools, we created an adventure game in Minecraft (real-time multiplayer mode).

You are sent to a mysterious space. Its consists of one-way-door, ladders, teleports, stairs, maze.



To escape from this space, you need to solve the problem:

- 1 Visit every partition of this space.
- 2 Locked every door in this structure.

3D-glasses is recommended for wonderful virtual reality experience.



Hope you enjoy it !!

Future Work

We plan to investigate further on:

- 1 automatically placed door, switches
- 2 properly structured stairs, ladder
- 3 randomized teleport zone

Acknowledgements I would like to thank Åbo Akademi for the support of this project.