SOC : Space optimization for COVID-19

Our project aims to isolate COVID-19 patients to minimize further spread by optimally dividing a given space into subsections of equal area. We hope that this program can help isolation wards better plan their spaces and allow for greater allocation of patients while also sustaining the functionality of the wards.

What does our program do?

- Outputs a 2D layout of the optimal room allocation drawn using PyGame

How does our program work?

- Implemented *Voronoi diagram algorithm* to divide the space
- Created pathways using the lines (edges)

The program is still in the works and will be available at https://github.com/charutomo/SOC.
If you have any queries regarding the project, feel free to reach us via email at m200084@e.ntu.edu.sg or cutomo001@e.ntu.edu.sg.

Thank you!

Visualization of Voronoi Diagram

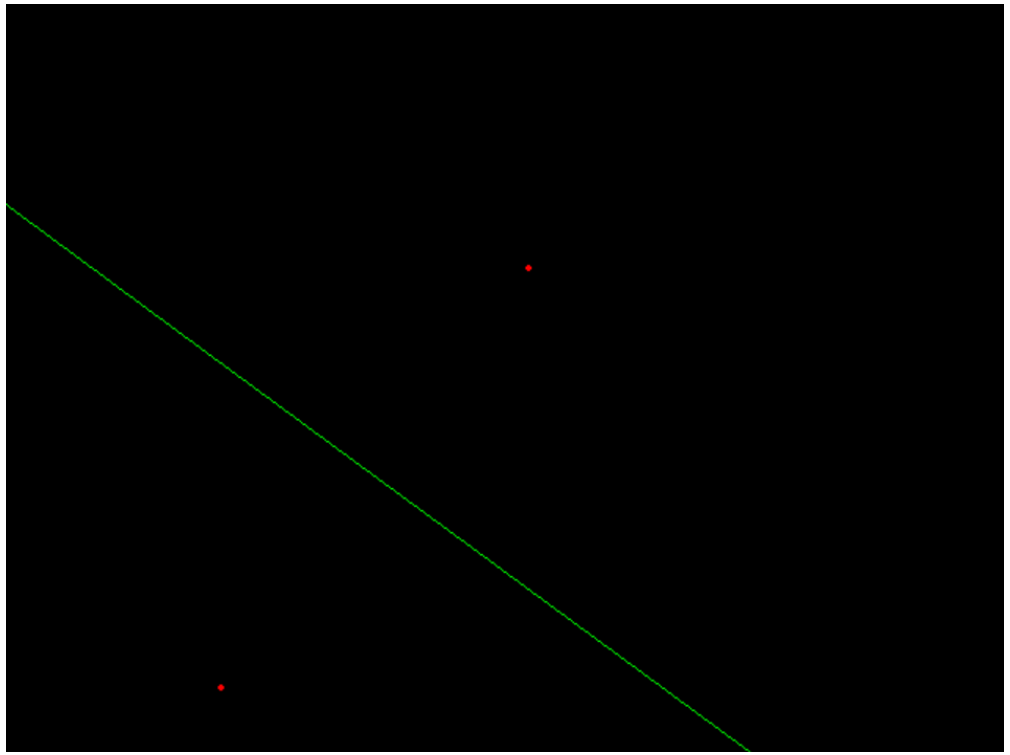

Figure 1: 2-point Voronoi Diagram

Our program outputs a sample of the 2-point Voronoi Diagram splitting a given space.

- First, we apply Fortune's algorithm to create a Voronoi Diagram and create a doubly connected edge list (DCEL)
- Furthermore, we let the face of the DCEL to be rooms and the edges to be corridors where we can adjust the pathway widths.