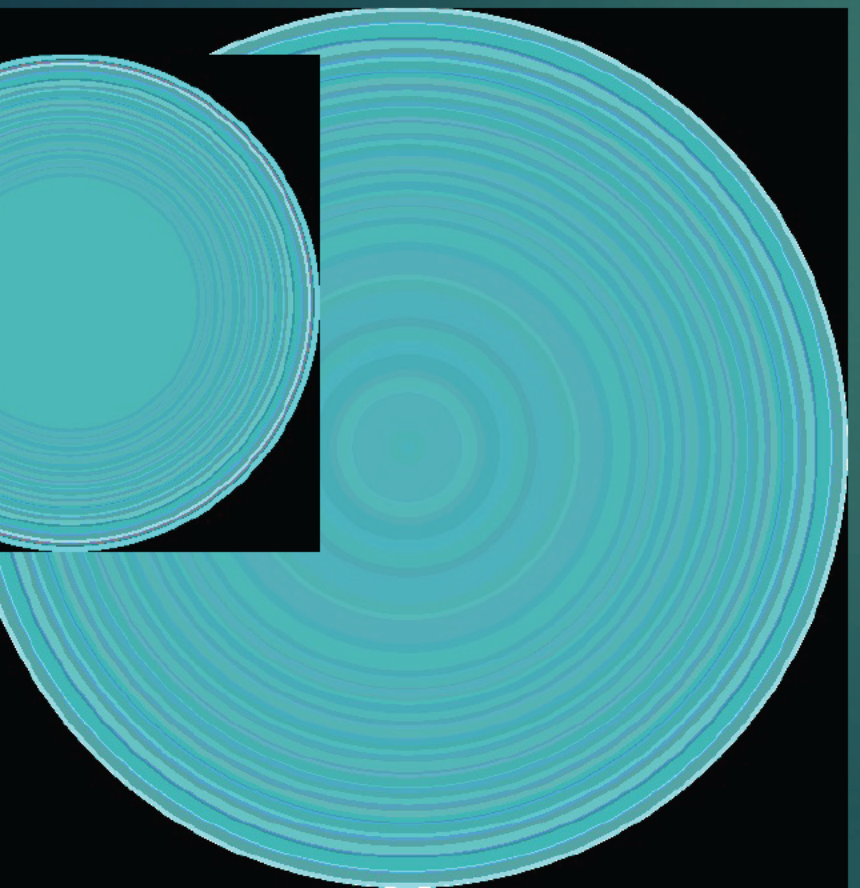
Group 10

Target Driven Navigation



DEEPAK KUMAR P HONAKERI

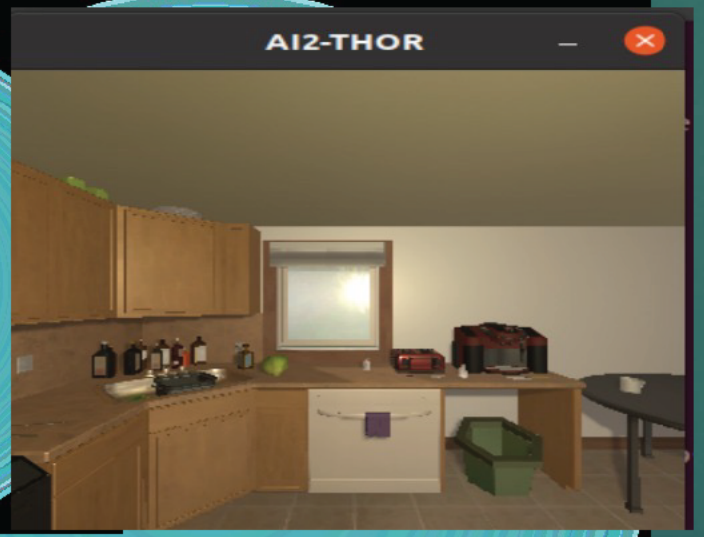
SAISHASHANK KONDURI

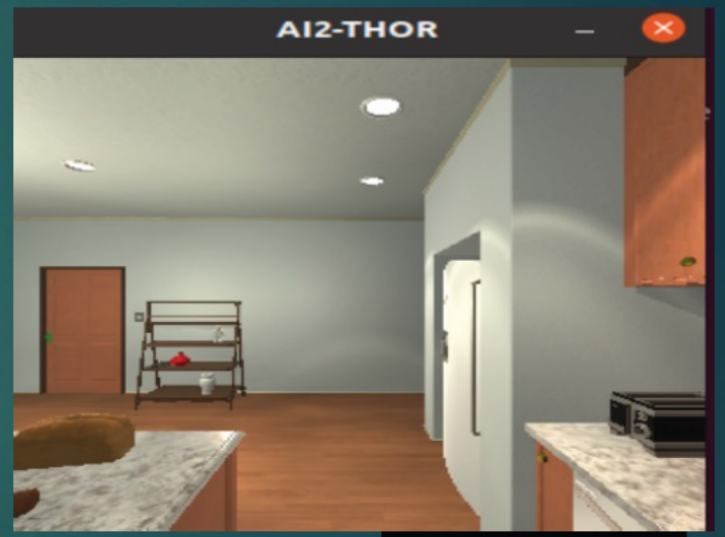
SANGITA JAYENDRAN

Aim - To move the agent to a desired target location present in the environment by navigating in the shortest path using the grid world.

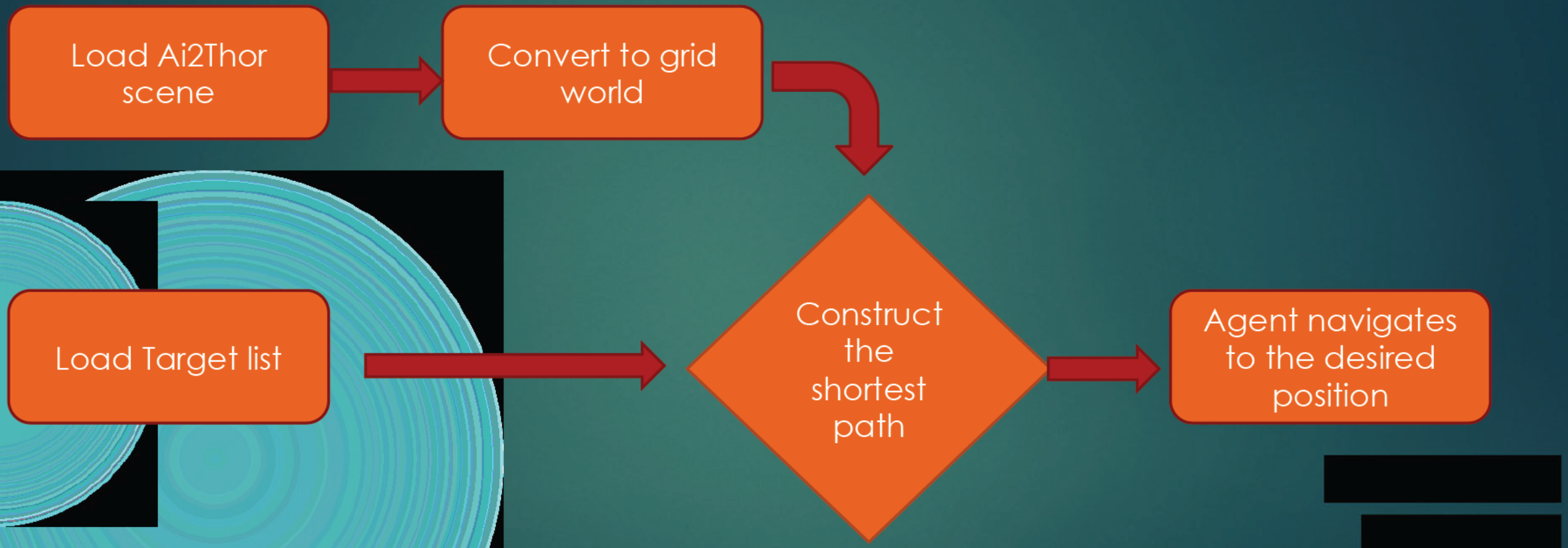
Environment

- AI2THor Kitchen scene





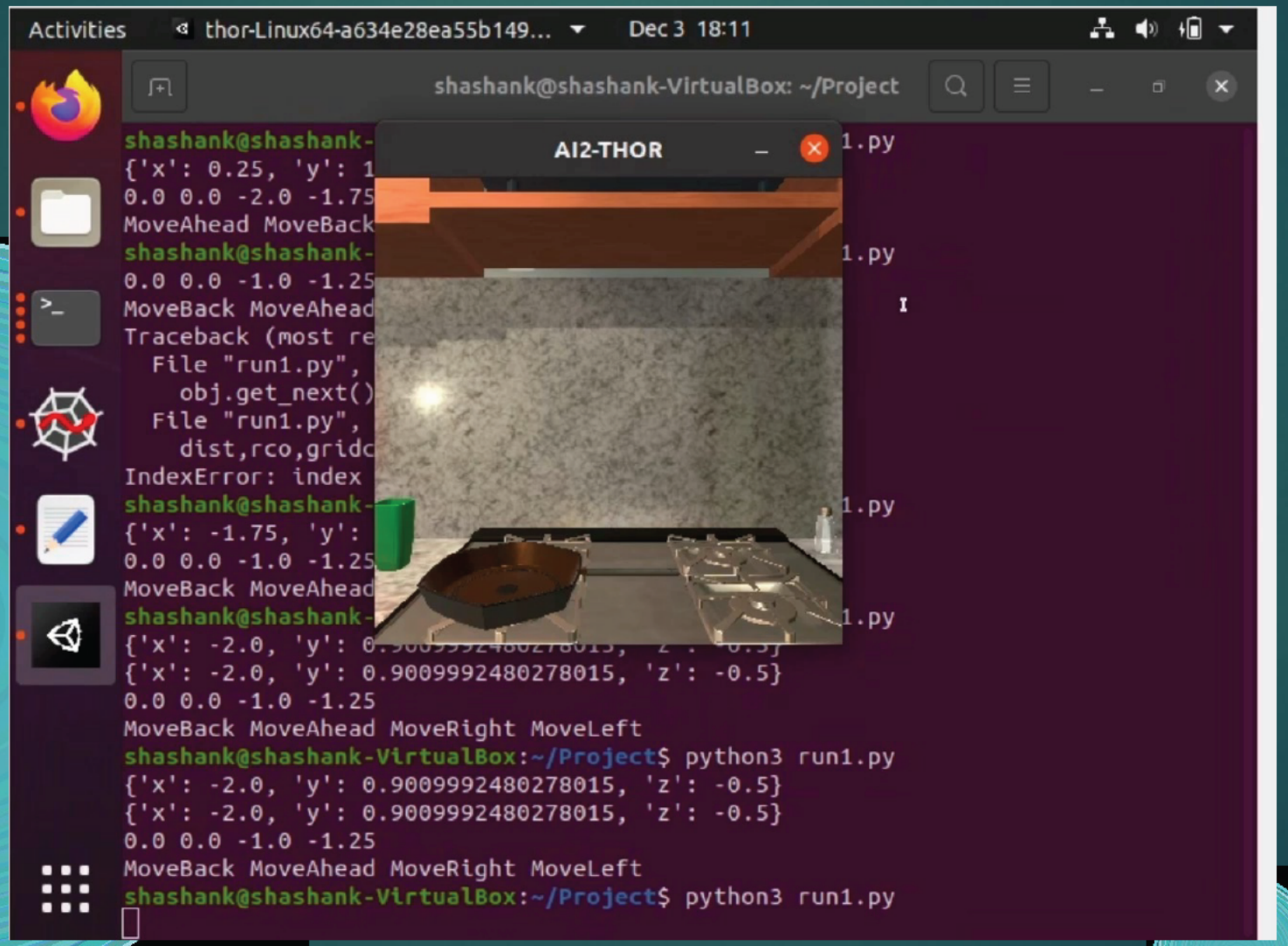
Flow of the code



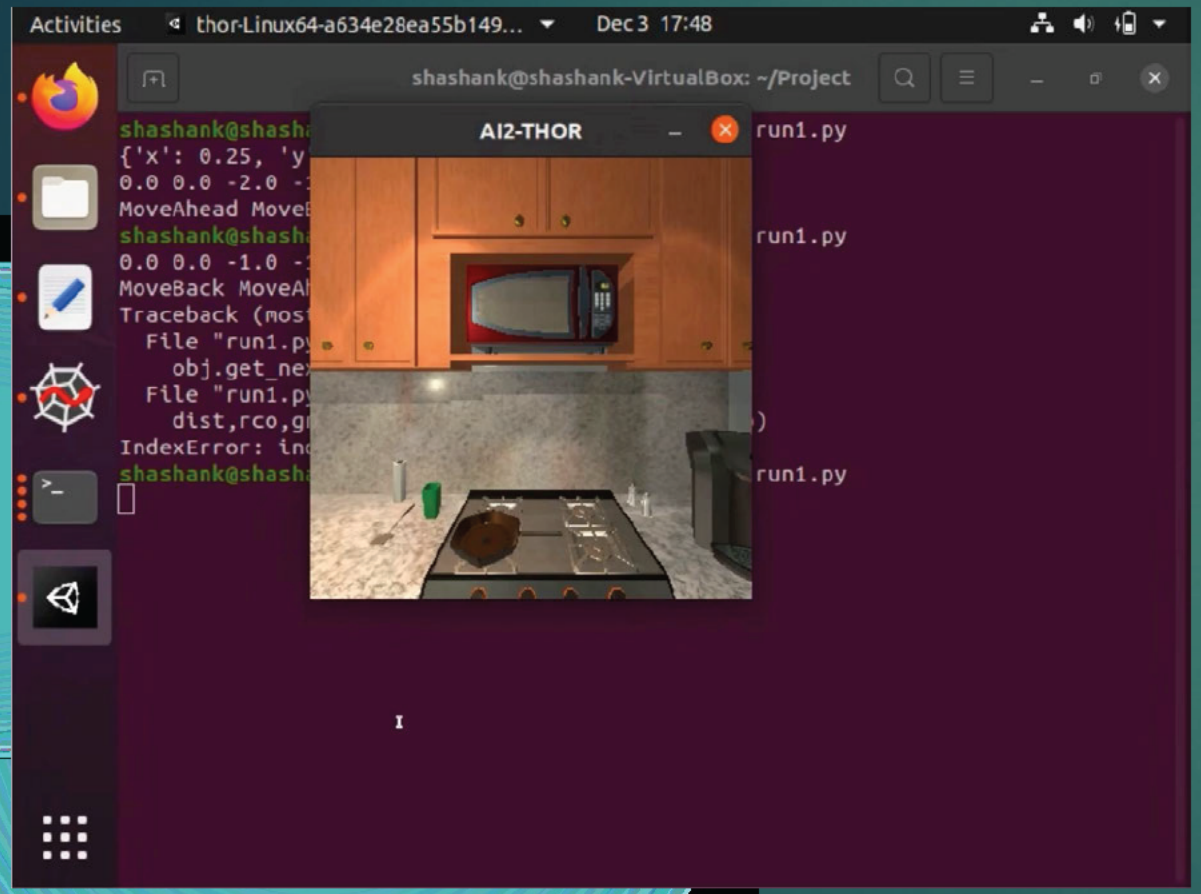
Methodology

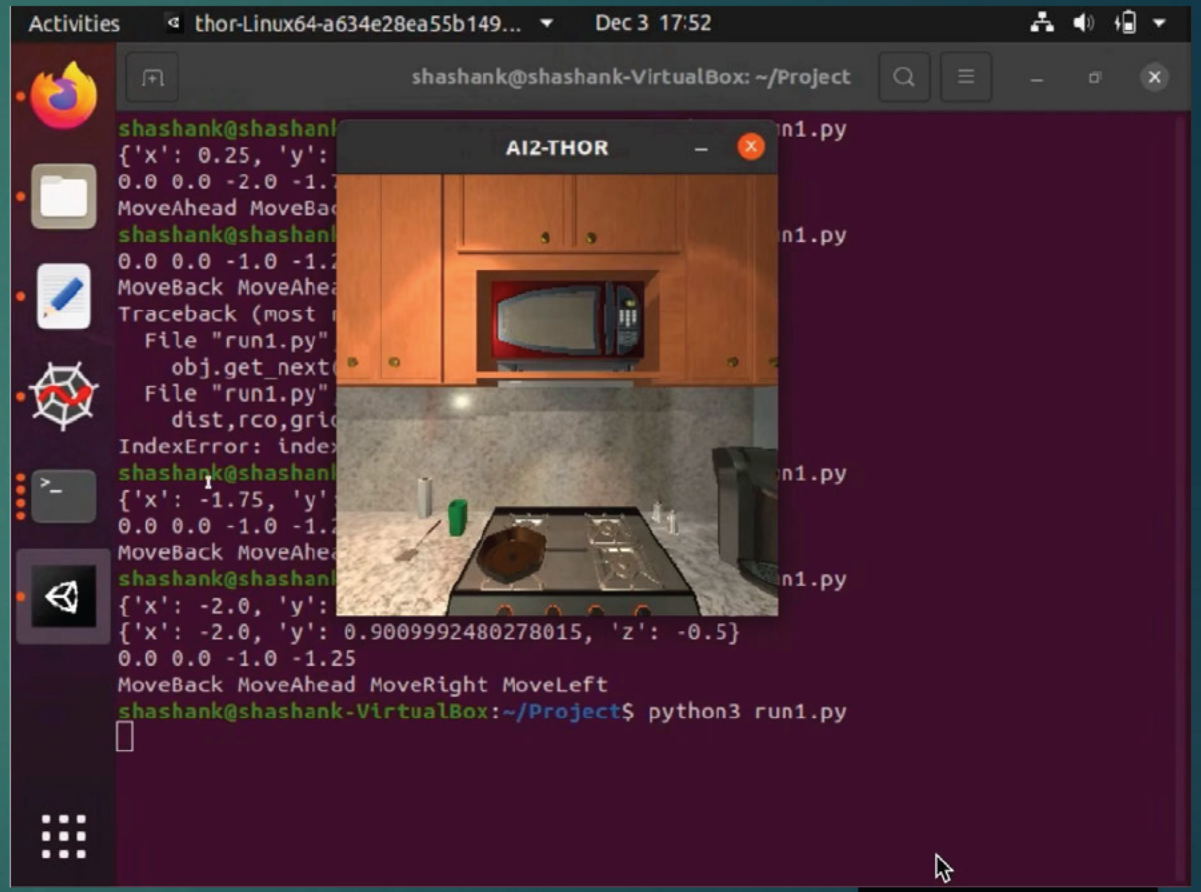
- Convert the Ai2Thor scenes into a grid world using the x and z axis (top view)
- All calculations are done based on the grid settings
  - Grid size – 0.25m
- BFS Shortest path
- Collison Avoidance
- Navigation - using the controller commands

Navigation with target - Fridge

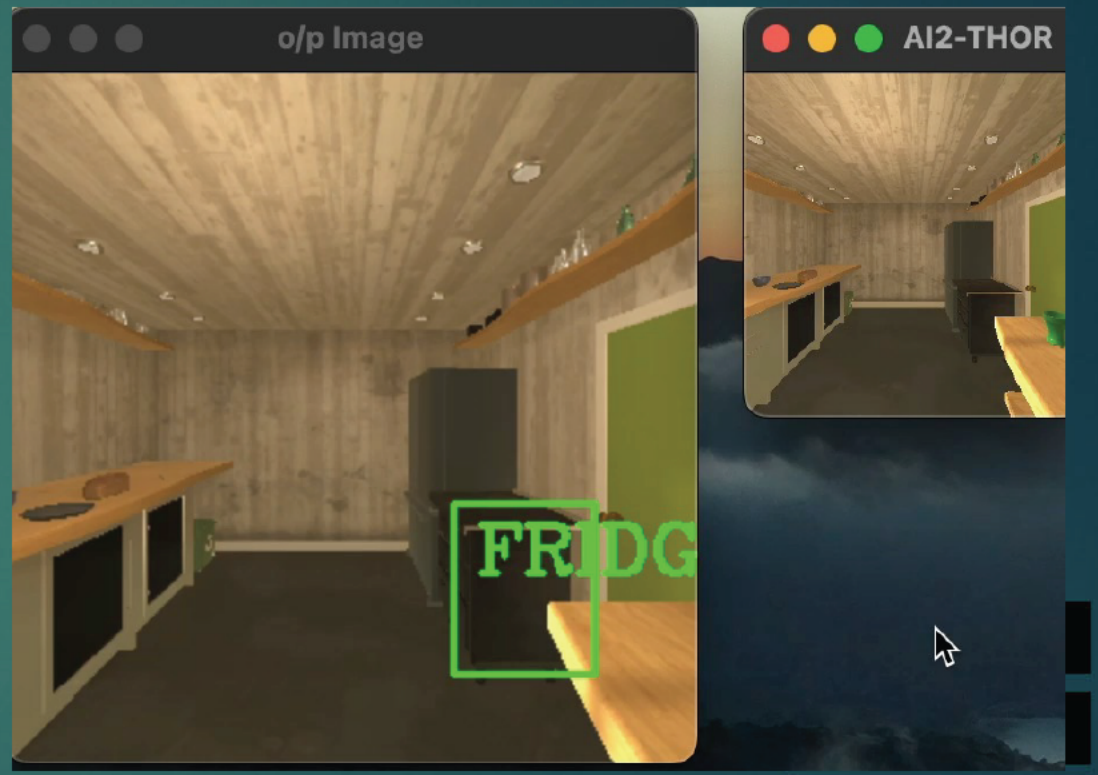


Navigation with target – Apple and chair





Sidetrack – navigation using Computer Vision



Future tasks

- Reducing the time taken to calculate and map the grid
- Getting the exact view once the agent reaches the desired location