



Path Planning for Automatic Vehicle Parking Problem

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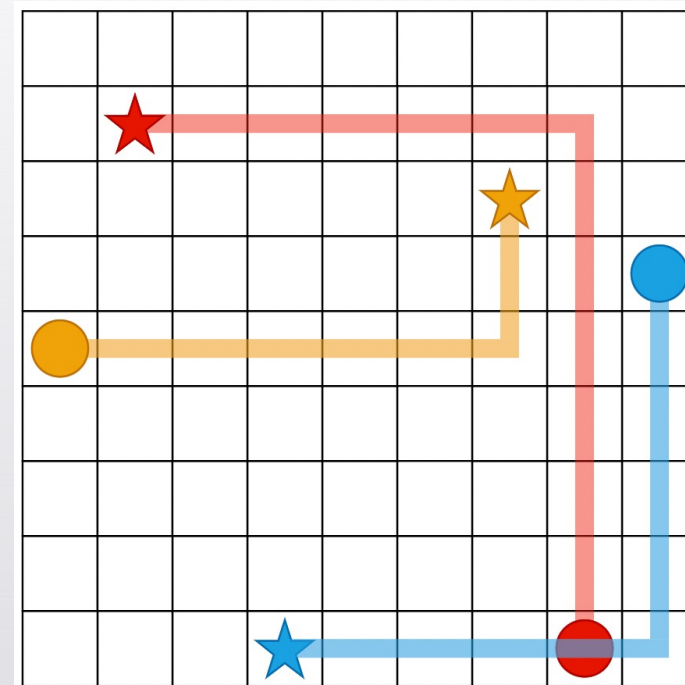
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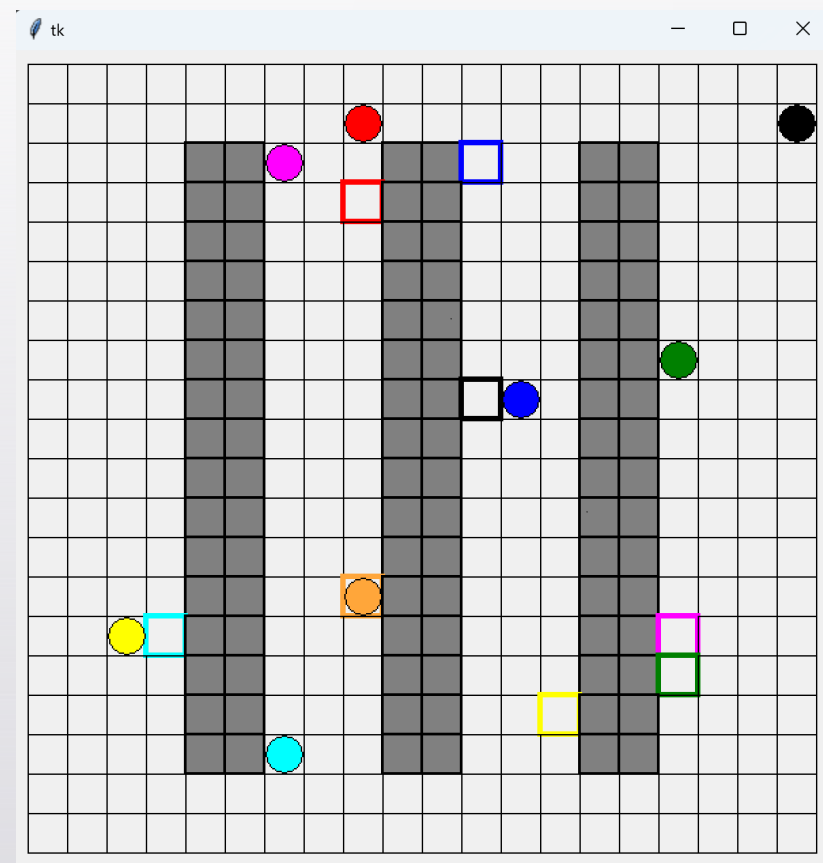
The Goal of our project

- The main objective of the project is to develop a solution for the multi-agent path planning problem in automatic vehicle parking, where multiple autonomous vehicles need to find their way to their designated parking spot while avoiding collisions with each other.



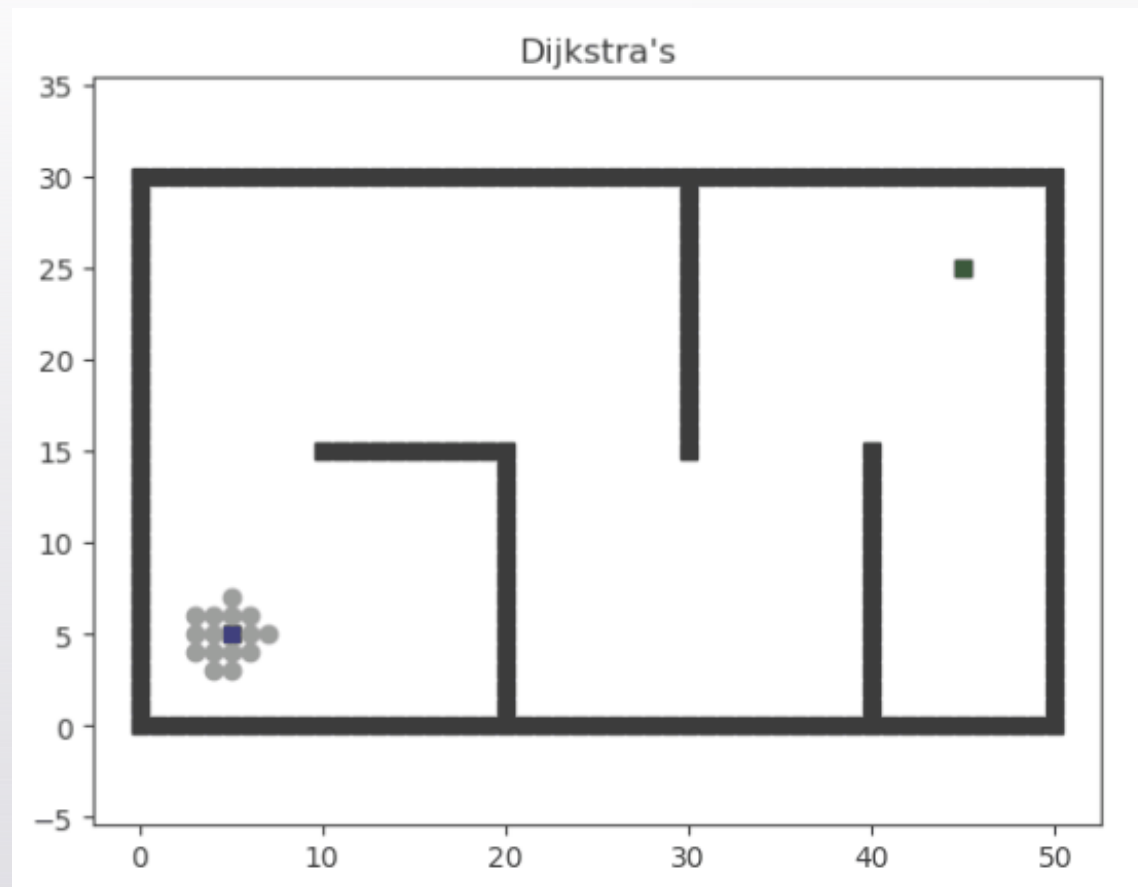
Design Multi-agent System

- Initialization of the environment
- Visualizing the maze
- Initializing the multi-agent
- Implement approach.

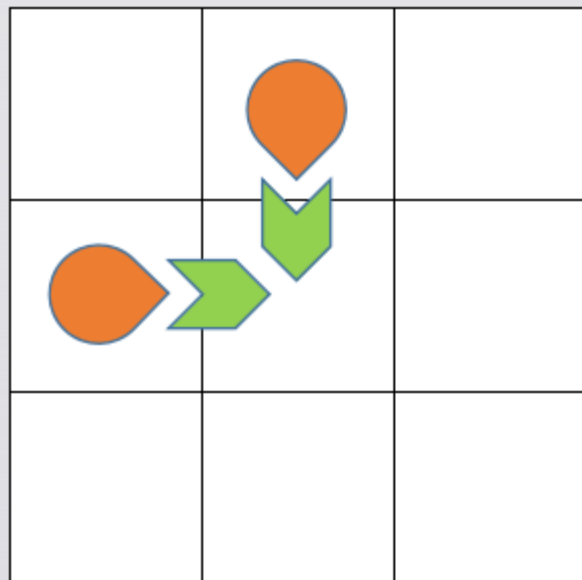


Path Search

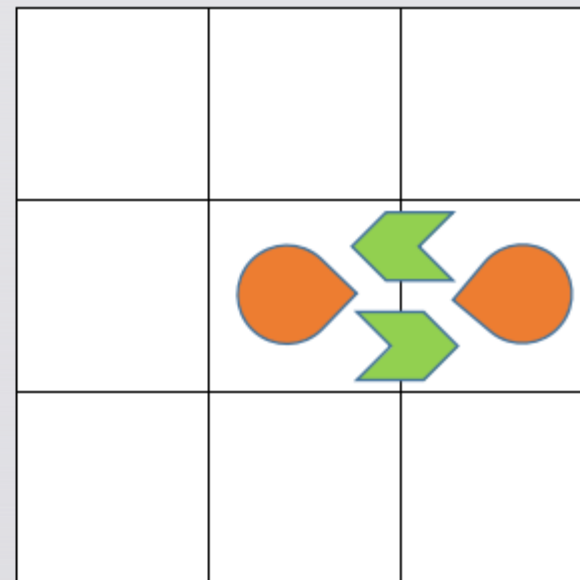
➤ Dijkstra Algorithm



Two types collision

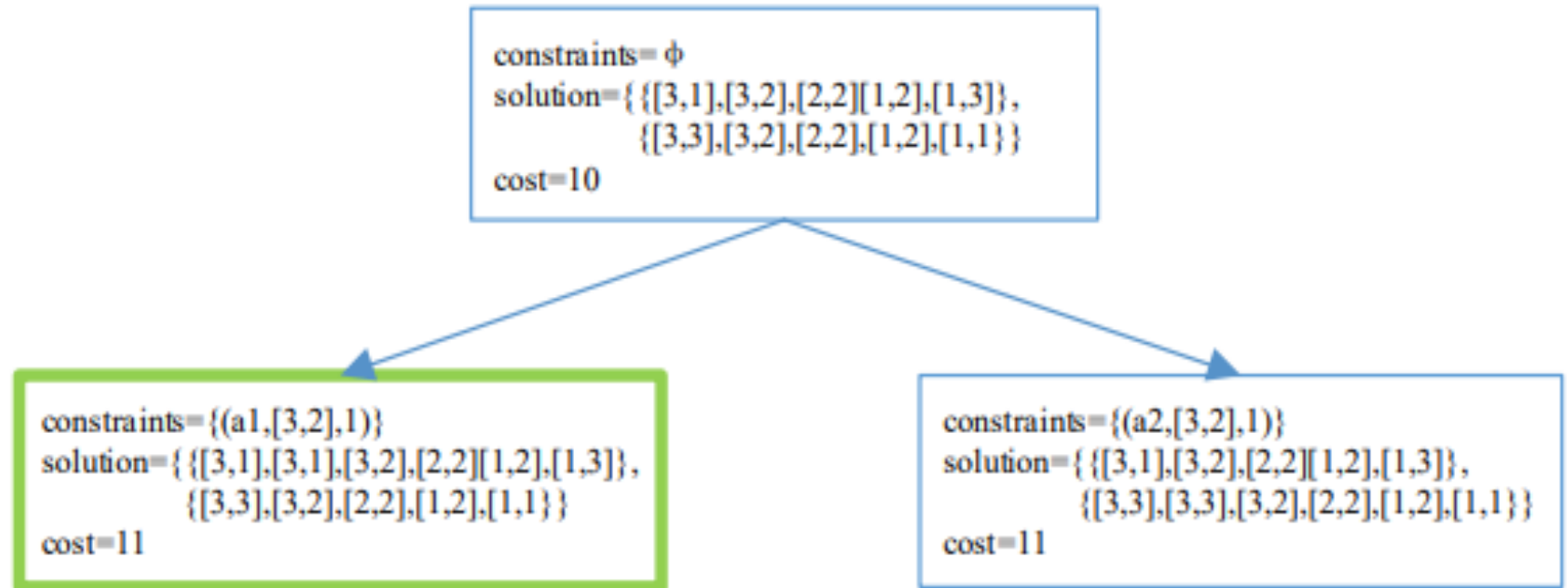
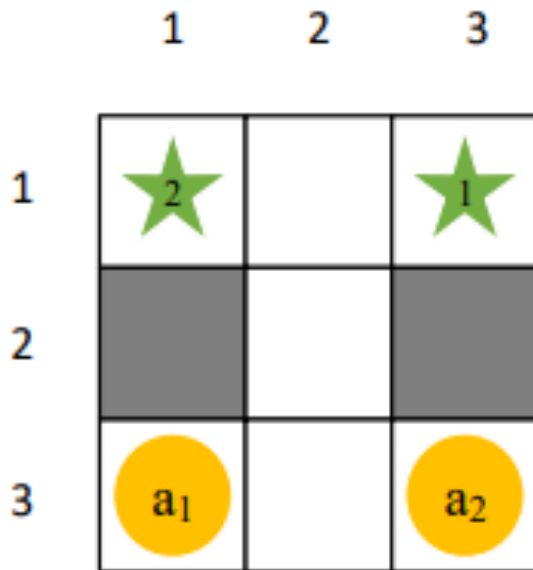


vertex collision



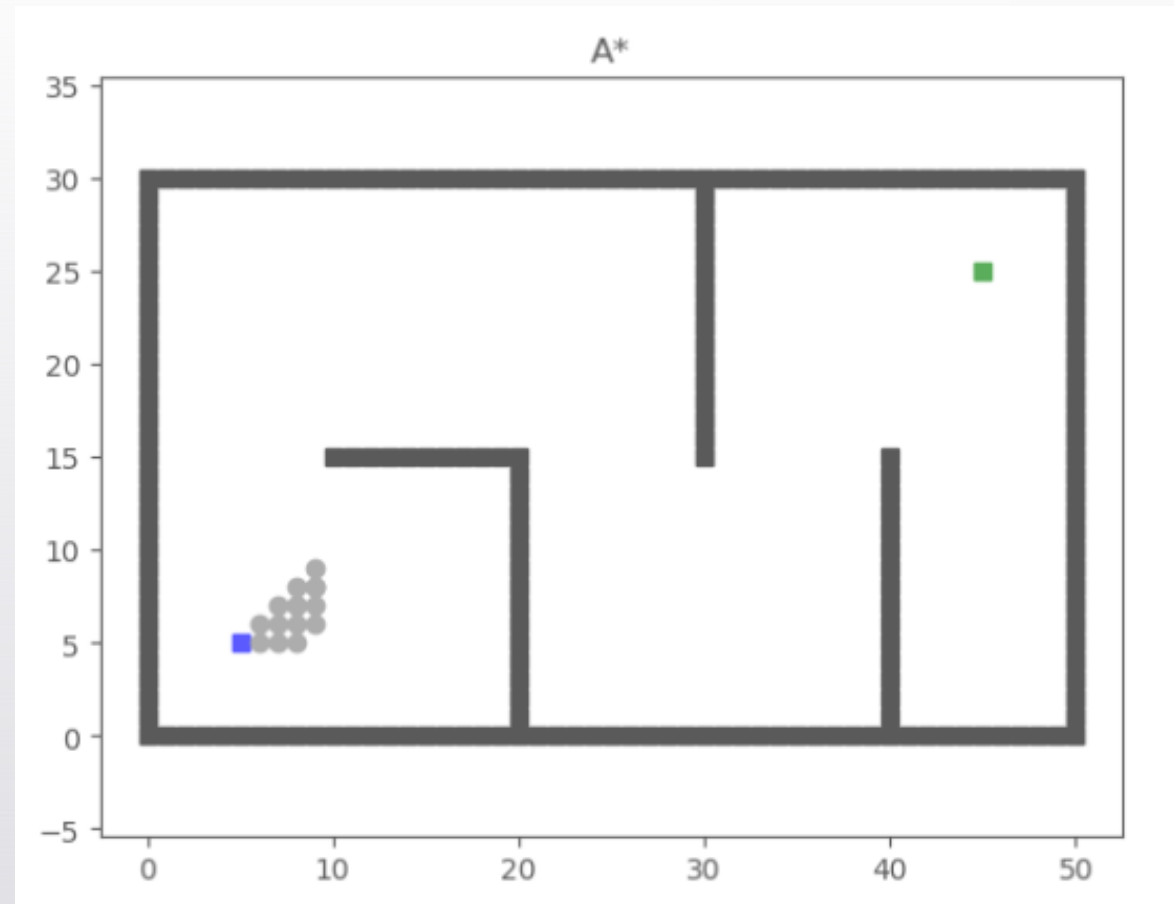
edge collision

Conflict Based Search (CBS)



A* algorithm

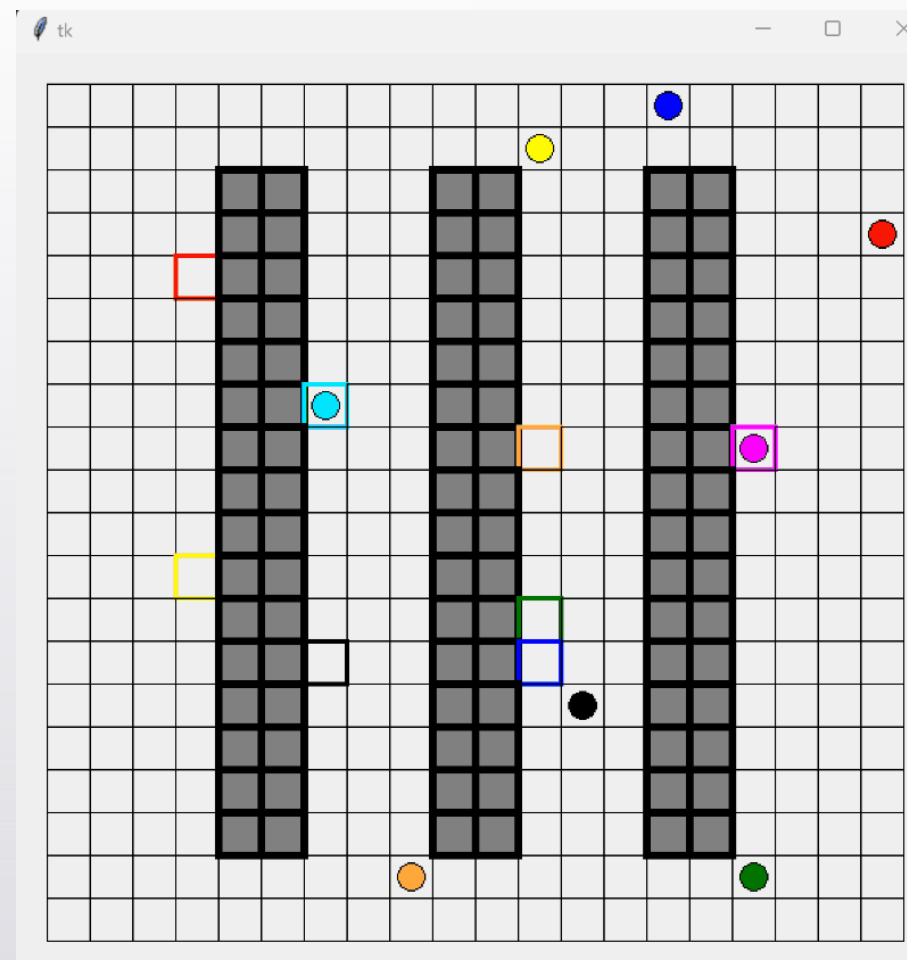
- Find the optimal path
- $F = H + G$
- Constraint checking

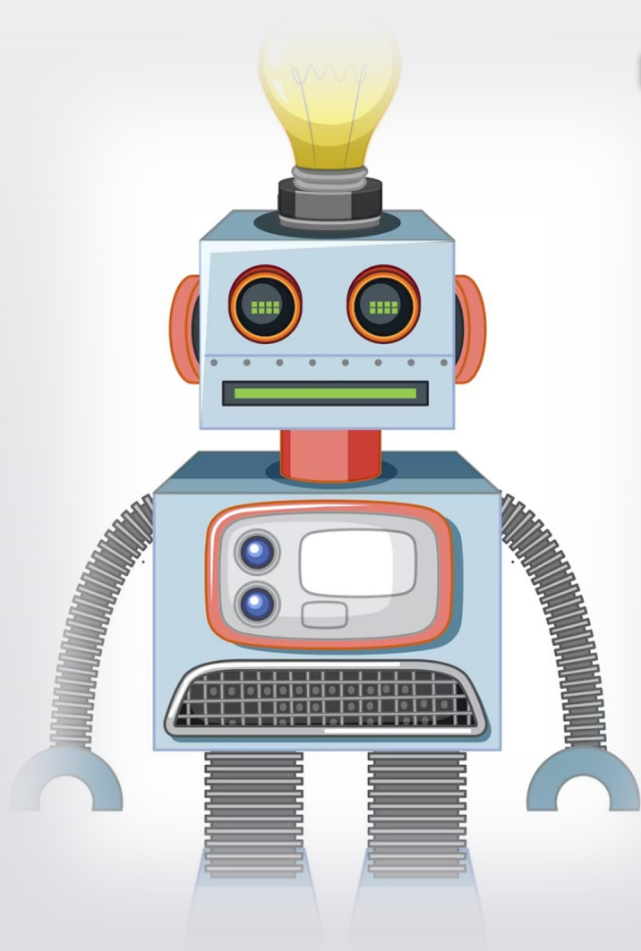


Conclusion

Three main algorithms we used

- Dijkstra algorithm
- A* algorithm
- Conflict-Based Search





Thank you for
your
attention