Feature-Sensitive Motion Planning

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Motion Planning

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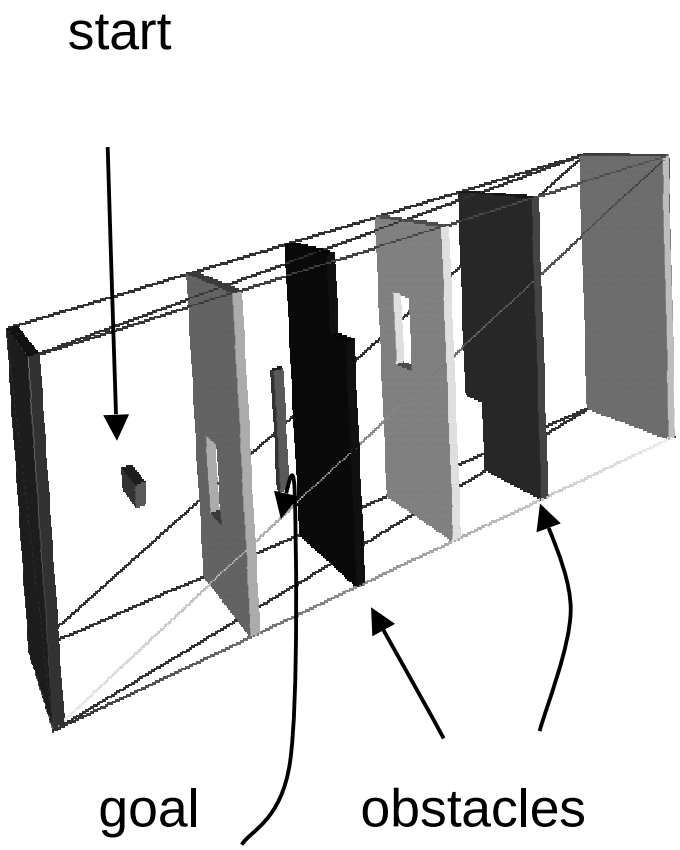
The Basic concept of motion planning is to find a path that moves a robot (movable object) from a start configuration to a goal configuration without colliding with the obstacles.



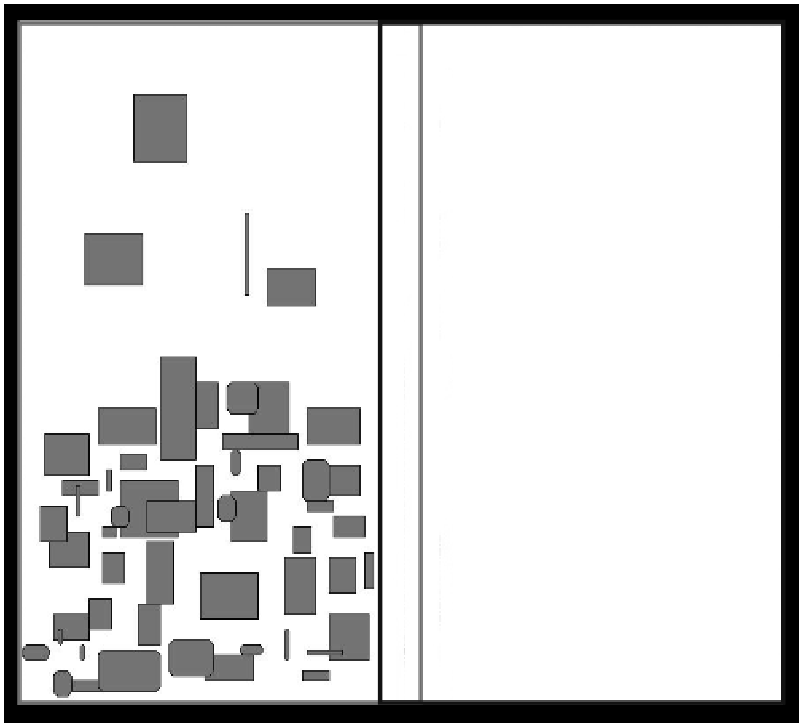
Feature-Sensitive Motion Planning

Parasol

*Divide environment into sections

*Create roadmap for each section using appropriate planner

*Connect each section to create one roadmap



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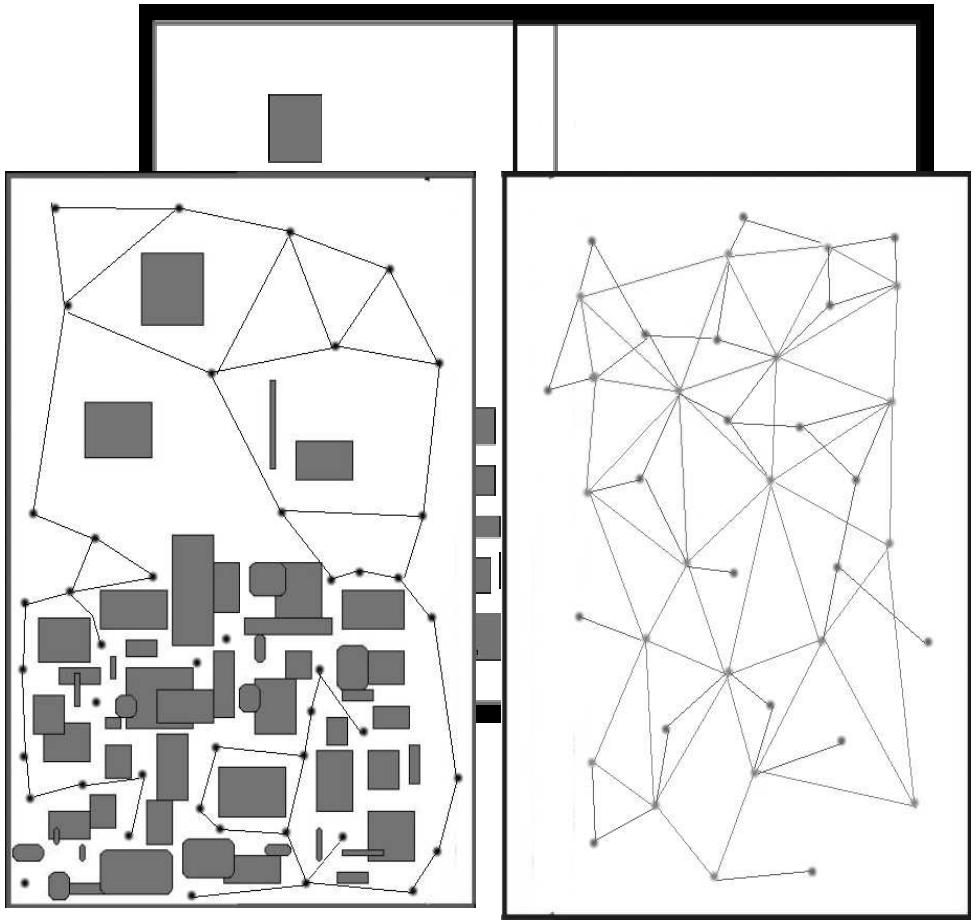

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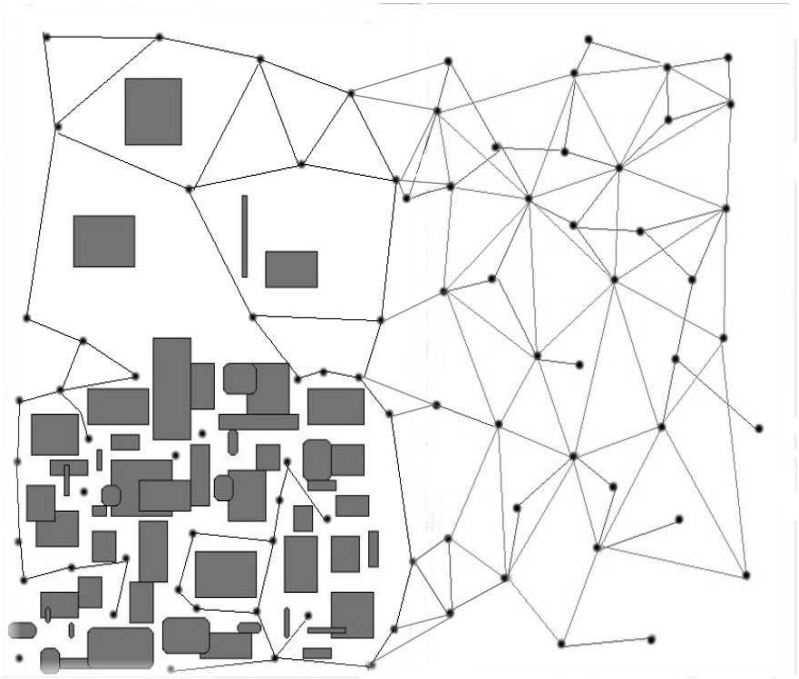

Research Goals

- Change Rotate At S function
- Implement method for connecting roadmaps generated by different planners
- Results of applying connection methods

Rotate_At_S

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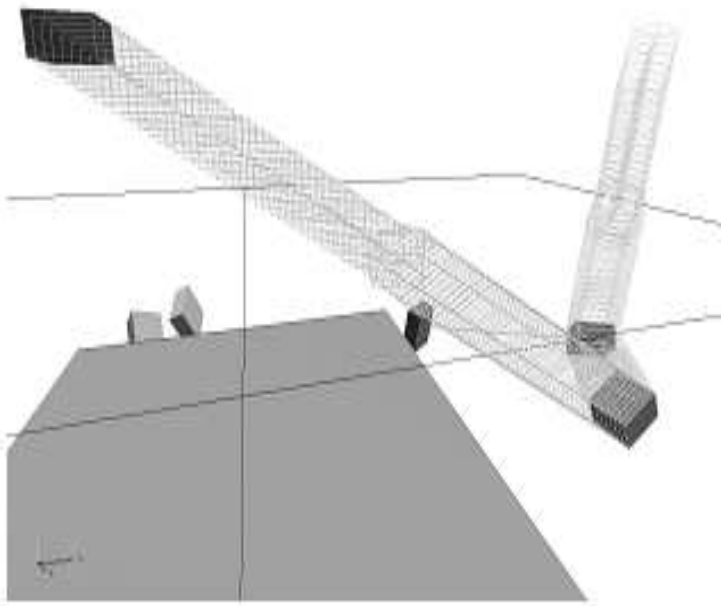
- A planner that connects two configurations by rotating at a given percentage before connecting them.

video



Rotate_At_S

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- Changed the Rotate_At_S function so that it will rotate several times between each configuration connection
- Minor debugging errors

Map Connection

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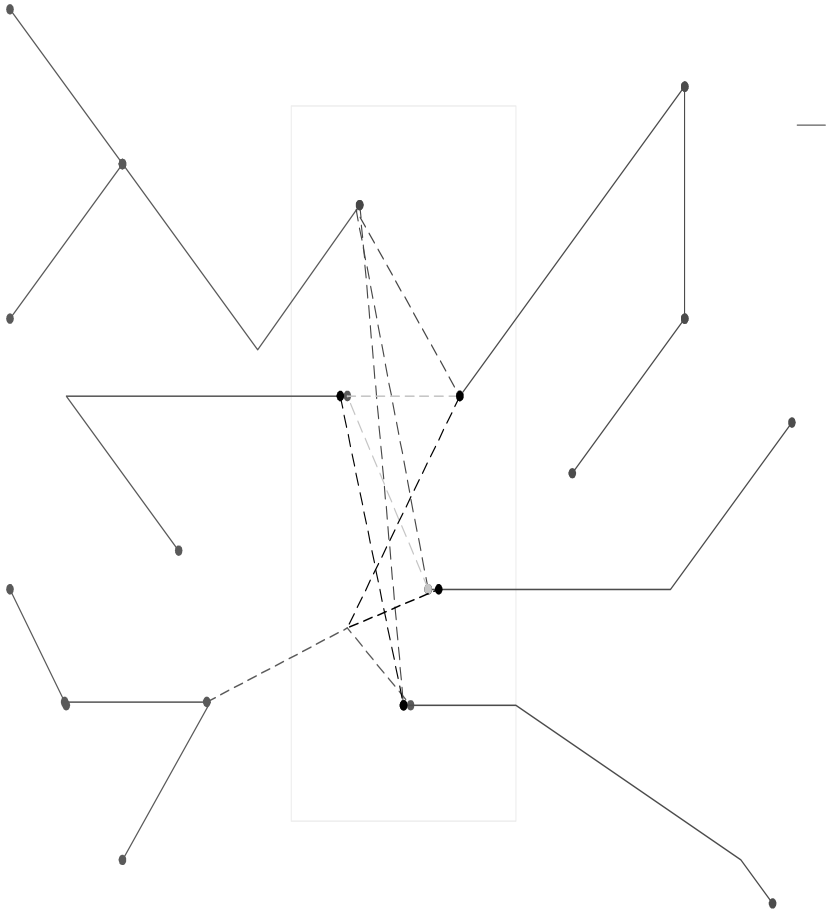
- Given two maps try to connect them
- Make a list of the vertices in the overlap for each region
- Try to connect each vertex from one list to all the vertices on the other list



Map Connection

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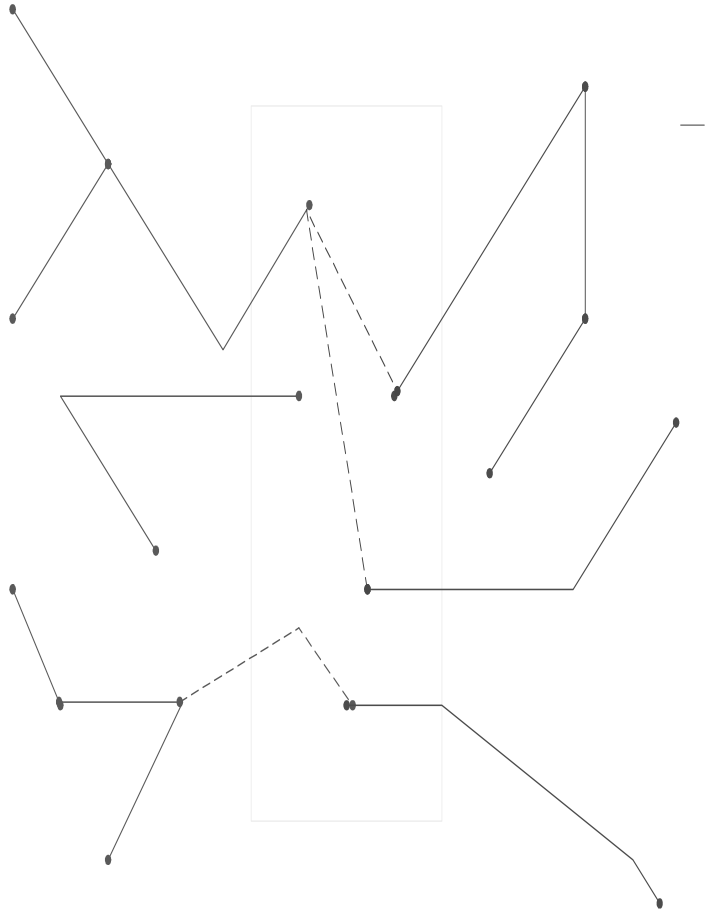
- Connect the vertices from the lists using K Closest
- Should be faster than the current method



Conclusion

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- The Feature-Sensitive Motion Planning project is very challenging.
- I am working with great mentors who have helped me learn a lot
- I am excited about what I will work on for the remainder of the program.