A method for finding the shortest path using extended Dijkstra's algorithm.

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ABSTRACT :

Conventionally, in order to find the optimum path in shortest path search problems, the Dijkstra method is used. The caveat with the Dijkstra method is that the time required to find the optimum path becomes too long when the search scope is broad. This makes the Dijkstra method unsuitable for real-time problems. In this paper, we attempt to obtain the optimum path(as close as possible to the Dijkstra method) in a short time. The new method extends the conventional Dijkstra method to obtain a solution to a problem given within a specified time, such as path searching in a navigation system.

In this project for a real-time problem, we are using the BITS-PILANI HYD campus for getting the nodes and creating a graph. The nodes of the graphs will represent the building position inside the campus. And the weights between the nodes are the distances between the structures which are taken from a dummy data set. And we find the shortest path between any two points in the graph using both Dijkstra's algorithm and extended Dijkstra's algorithm(We need to implement extended Dijkstra's algorithm first).

After finding the shortest path using both the algorithms we will show that the execution time (search time to find the shortest path) reduces without much effect on the optimal cost while using the extended Dijkstra's algorithm. The implementation is done using the C programming language.

REFERENCE :

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