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# DEVELOPMENT OF AN ALGORITHM FOR K-SHORTEST PATH

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The paper presents the theoretical background and a new implementation of k-th shortest path. The problem of the shortest path is essential in transportation. Its generalization, k-th shortest path, is vital in the field of transportation in studies for solving questions from ITS, road users behavior and dynamic traffic assignment. Even it was well studied so far it was not yet satisfactory solved. The proposed algorithm has stability and it has low order complexity. For all factor that were considered the dependence is of first order. For a reasonable number of nodes, it can be used on an ordinary computer.

The article includes the pseudo-code description and the high order language computer implementation in such a manner that subject to be clear and easy to understand.

The complexity of the algorithm was established from the theoretical point of view and it was verified by simulation. The simulation results were processed by regression and the dependence found for the running time for different random shape networks respects the theoretical findings.