

Common methods of optimal route search are described in the thesis. Also, existing procedures used in problematics of transportation networks are mentioned. A nonlinear price function is proposed, which enables the user to specify their own preferences of any criteria (length, time, cost, etc.). Moreover, necessary modifications of common optimal route searching algorithms are presented. A method for propagation of manoeuvres of arbitrary length into the transportation network is shown. This method enlarges nodes and vertices sets by amount linearly proportional to number of nodes involved in manoeuvre set. Also, a general method diminishing the number of edges, which have to be encountered during optimal route search process, is proposed. Precalculated edges sets are used to gain this goal. Proposed thesis contains three methods solving specific aspects of optimal route search in transportation networks. While the first method, when applied in practice, can bring limitations of processable data size, the other two procedures form the basis of a navigation system.