

## ABSTRACT

Master's thesis: 98 pp., 18 images, 45 tables, 1 supplements, 61 sources.

**Topicality.** Public transport plays an important role in the life of any large city. Everyday ordinary citizens use a variety of public means of transportation. These include both local transportation and intercity connections.

Due to the large number of people in modern large cities, people are increasingly faced with the problem of overloading vehicles at certain peak hours of work connections.

The problem under consideration is related to the assessment of the load of the vehicle by passengers. A full picture of the route loading can be obtained by calculating the number of people on ground transport and comparing this assessment with location data and time. This information can be used to correct the timetable of the route, the technical composition of the vehicles and their simultaneous number on the route in order to optimize the routes for maintenance of the route and increase the comfort of transportation.

**Relationship of work with scientific programs, plans, themes.** The work was carried out at the Department of Automated Systems for Information Processing and Management of the National Technical University of Ukraine "Kyiv Polytechnic Institute. Igor Sikorsky" within the framework of the theme "*Effective methods for solving the problems of the theory of schedules*", state registration number 0117U000919.

**The purpose** of the study is to improve the quality of passenger transport services in public transport and to optimize the routes in support of the operation of the route.

To achieve the goal, you must accomplish the following **tasks**:

- carry out an overview of existing methods and algorithms for monitoring of public transport;
- formalize the tasks of estimating the loading of rolling stock and calculating the optimum parameters of the traffic of vehicles on the route;
- develop a prototype of public transport monitoring and management systems on the basis of the above-mentioned methods;
- perform the analysis of the obtained results.

**The object** of research is processes of monitoring and management of public transport.

**The subject** of the research is information system of monitoring and management of transport vehicles of enterprise for passenger transportation.

**The research methods** used in the work are based on the methods of machine vision and information retrieval.

**The scientific novelty of the obtained results** is to develop a mathematical model for assessing the loading of transport. The developed approach to data processing provides an opportunity to calculate the optimal parameters of vehicle traffic on a route that satisfies economic constraints and requirements to the quality of transportations. The approach is based on a combination of machine vision techniques and a developed algorithm for estimating route loading.

**Publications.** The materials of the work were published at the scientific and technical conference "The actual problems of informatization of management decisions (APIMD 2018). Thesis materials are published in the international scientific-practical conference "Mathematical and simulation modeling of systems MODS 2018".

GEOGRAPHICAL COORDINATES EXPRESSION, DATA TRANSMISSION, PUBLIC TRANSPORT, ROUTE, TRANSPORTATION.