Intellectual System of Analysis and Forecasting of Road Condition

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To date, the state of Ukrainian highways is unsatisfactory, and this applies not only to a certain section of a city or other settlement, but to the overall picture throughout the territory. This is mainly due to the fact that the cost of repairing and constructing the motorways did not ensure the restoration of their proper condition. Not only car owners who are constantly forced to carry out technical repairs, but also the economy of the country suffer from such problems with the roads. Poor roads lead to a worsening of tourist activity, various kinds of trade. All this leads to the problem of doing business in the country and as a result of problems with economic growth, since the costs may not always be covered by the allocated money and time.

At the present stage in the world practice it is shown that in order for the roads to be of high quality, the effective functioning of the monitoring system of the road surface is necessary. The main element of the system is the diagnostics of roads. Such work is carried out by specialized organizations using mobile road laboratories and specialized equipment.

The simpler the system in transportation and in practice the greater the demand for it. Therefore, many new systems are built on simple boards that connect to conventional cars and transmit similar data according to which the analysis can be performed. These kinds of systems are built on simple principles that use limited functionality. However, they can also face problems.

The information system will be built on the receipt of data from external sensors, which will be engaged in the surveillance of the road surface. Attention will be paid to its software part, which will include analysis and forecasting of the road surface.

In the modern world, it is impossible to meet a person without a smartphone, based on the data obtained from him and our analysis and forecasting will be built accordingly. It has all the sensors we need in Figure 1 to show the complete scheme of such a system.

According to Figure 1, you can list all the sensors that are commonly found on smartphones and can be used to detect road surface anomalies. Thus, a modern smartphone can be used as one data source for the system.

All data that will be received into the system will be processed and clustered. Cluster analysis is one of the non-teacher training methods that will allow you to predict the transition of a research object from one class to another without interfering with the human process. This will simplify the work of analysts who will be responsible for forming requests for road repairs and prioritizing their implementation, taking into account various aspects in particular economic. This

system, with long-term use, will allow forecasting based on the experience of artificial intelligence. Similar in concept systems have long been used in the agricultural industry to forecast yields and other areas.
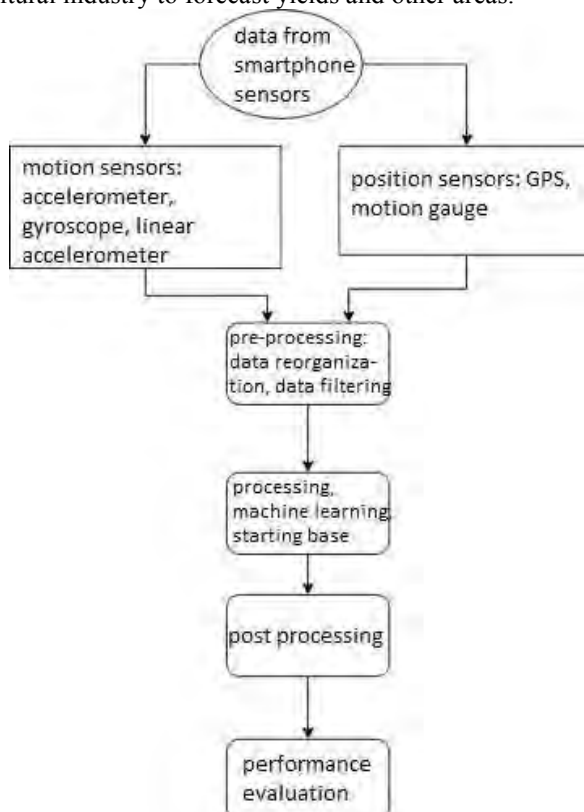

Fig.1. Scheme of the system

Therefore, according to the results of the study, it is necessary to ensure the processing of the data to be obtained, to form a clustering of all sites with the current state of coverage. In view of the criticality of the problem of the road surface, it can be argued that systems of this kind are a priority in development.

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