



Mathematical model of the traffic intensity and of the quantity of poisonous rubbish (on the example of the Yerevan city)

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City Yerevan is not in good condition from the point of view of ecology, the main reason of which is the big amount of harmful outflows of transport means. It's enough to mention that in total amount of pollution of Yerevan environment the part of transport means forms about 85%. Such ecological condition makes to do serious investigations in order to determine and analyze the quantity of harmful outflows of transport means.

As a research method the calculating way to determine the contents of harmful outflows of transport means is taken in the work. To realize investigations by the mentioned way the traffic intensity of all streets of Yerevan City must be determined at first.

Now in Yerevan City the street's traffic intensity is defining by counting the number of automobiles passing through the street during appointed time period. Though the method is simple, the definition of intensity by this way requires a lot of time and the long time period of calculations and data processing brings to a big amount of mistakes, as the calculations in different streets are being done in various time intervals.

To avoid such insufficiencies it is necessary to have ability to calculate traffic intensity of deferent streets of the city simultaneously.

For this purposes as basic source of data the Yerevan City space picture with 62 cm resolution can be used (Qvic bird 62 cm resolution).

The analysis and decipher of the space picture gives an opportunity to calculate the length, traffic lane of each street and the number of automobiles passing through them.

Processing a mathematical model and using the data received from the space picture it will be possible to determine the average rate of movement of automobiles moving through each street and depending upon it the traffic intensity of the street.

Possessing the traffic intensity of each street and using corresponding mathematical method it will be possible to determine the quantity of harmful outflows (CO_2 , CO, NO_x , C_xH_y , heavy metals) and cost of fuel of each kilometer of each street during one hour.

In order to realize the described works more rapid and effective it is needed to create a database and software support that is to create information processing automated system.

The system will give abilities:

1. to implement data input into the database calculated basing on the space picture
2. to edit data: update, delete
3. to calculate the average (safe) rate of movement of automobiles, traffic intensity and quantity of harmful outflows in the streets (avenues) on the inputted data.
4. to realize selection on the inputted data concerning to the streets (avenues) and also on the results of calculations.
5. to preview and print the entire information about the streets, which where obtained in the result of selection all together and separately,
6. to transform the data received in the result of selection from Visual Studio type tables into Excel type tables, meaning that Excel tables are more popular and accessible for users.

The availability of information about traffic intensity and quantity of harmful outflows of each street in the database will award an opportunity to make the thematic map schemas of outflows of CO_2 , CO, NO_x , C_xH_y , heavy metals by transport means into the air using geoinformational system ArcView GIS 3.2a.