Instrumentally, the problem is solved on the platform of the existing package of technical analysis data and does not require additional material and financial costs.

Thus, the neural network support for pulse oxiometry under conditions of uncertainty is solved by use of the intelligent technologies in the basis of artificial neural networks in the environment of neuroemulator packages and is implemented as an independent application in the main program code of the technical analysis package. The invariance of the diagnostic result to interfering factors is achieved by training the model on a representative sample of retrospective precedents from the history of patient care from the existing database.

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OPTIMIZATION OF TRAFFIC LIGHTS PARAMETERS ON ROAD SECTION BASED ON INCOMING DATA FROM CAMERAS

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The constant grows of cities has resulted in an issue with traffic congestion. Nowadays traffic lights are being regulated manually or by using the

preset mean values of intensity. The purpose of the research is to provide a solution to the problem by developing a system for optimizing traffic control parameters based on constantly changing intensity parameters taken from cameras. Intelligent traffic signal control system using object detection was suggested in work [1]. However, the authors consider improving the traffic conditions only for one intersection.

The system is based on Petri-object simulation [2] and is operating with the objects intersections and crossovers [3]. In this research the usage of genetic algorithm to deal with the traffic control is considered. Such parameters as intensities, green and red lights duration of the intersections, the time spent to drive over intersections or crossovers is used as a set of properties of the candidates in population. A fitness function is measuring the maximum of mean value of car numbers on the intersections.

The scheme of the traffic section used for analysis is shown in the Fig. 1 and consists of six intersections and has seven crossovers to have them connected. Three types of intersections are considered, whereas only one type of crossovers. The time needed to drive through the crossover and time needed to drive through a intersections are being found by using uniform distribution, when time delays of incoming cars is being found by exponential distribution. The green, red and yellow light duration is constant.

Two runs with simulation time set to thirty minutes were performed. First run implemented static intensity based on mean intensity during the simulation time and second run implemented dynamic intensity, which was changing every minute based on incoming data from the cameras, for the crossroad 3. The only difference between the runs was the dynamically changing intensity for the crossroad 3. The resulted fitness function for static intensity run has been obtained 83.74 and for the dynamic intensity it has been obtained 72.28.

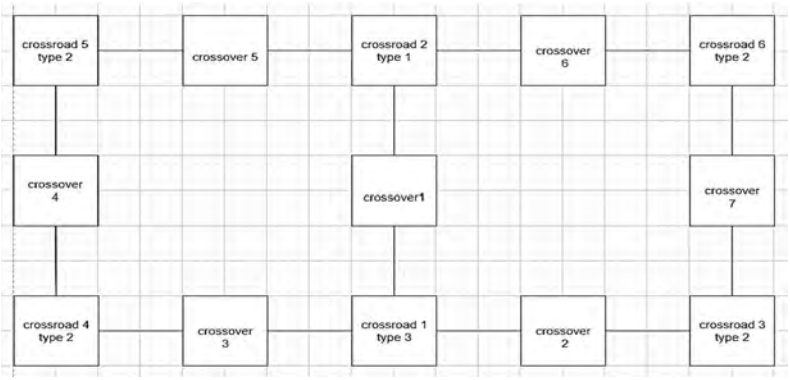

Fig. 1. Scheme of the traffic section

The result of simulation has proved that using static preset intensity parameters based on mean intensity during the specific time period differs from the dynamic one. Although the test run with dynamic intensity was done with only one intensity being changed periodically during the run, it had great impact on the fitness function. Currently there are not many devices that could provide scientists with the information about road section situation therefore only one dynamic parameter was involved. Having stated that, installation of more facilities on intersections leading to getting more parameters, including intensity, for the system to work properly is considered to be a matter of great importance.

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MODELING OF A QUEUING SYSTEM BASED ON CEN NETWORK IN GPSS WORLD SOFTWARE ENVIRONMENT

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A queuing system (QMS) is any system in which the flow of requirements meets the limited possibilities of their processing [1]. The QMS can perform certain operations on the requirements coming into the system. An element of the system that performs operations on requirements is called a service device or simply a device. Queues may arise within the QMS system. A queue is a set of requests waiting to be serviced when the device is already busy servicing a previous request.

Consider the process of modeling a queuing system based on the task. Suppose we need to simulate the operation of a small system that has one