

**DATA ACQUISITION AND PROCESSING REGARDING  
THE QUANTITY AND TYPE OF TRANSPORTATION MEANS  
USING COMPUTER VISION SYSTEMS**

**Skliarov O.V., Selevich S.G.**

***National Technical University «Kharkiv Polytechnic Institute», Kharkiv***

The availability of accurate initial data for calculations that most accurately reflect the real situation with the quantity and type of road users is a crucial factor for modeling and optimizing the movement of transportation means in urban areas and saturated traffic flows.

The simulator utilizing these data is a gaming application for Android and iOS systems, distributed free of charge through respective platforms. This distribution mechanism enables maximum coverage of the target audience, thereby enhancing the quality of applying crowdsourcing approaches to problem-solving. Another important factor in obtaining reliable results in terms of quantity and quality is increasing user engagement. Engagement is proposed to be enhanced by utilizing gamification and personalization within the application. Implementing gamification principles includes a leaderboard, a system of rewards for engaging in gameplay, using internally gamified "badges," and the ability to share achievements with friends.

Working with personalization includes offering users familiar intersections and the ability to adjust those that cause discomfort in real life. By adjusting intersections in the simulator, the user can both receive feedback on their settings' optimality and suggest more effective solutions. However, achieving personalization requires real data on intersections, their traffic loads at different times, and the quantitative and qualitative composition of traffic.

The issue of obtaining data from real intersections is addressed by applying computer vision systems, allowing for the analysis of the quantitative and qualitative composition of traffic at selected intersections through video footage captured by road cameras and/or drones. Subsequently, the obtained video file is analyzed using artificial intelligence, employing computer vision methods from the GoodVision company. After processing, we receive detailed data on all road users with a high degree of accuracy, enabling us to use them to enhance personalization and user interest in the simulator application.

Addressing the problem of real data is a crucial part of advancing and increasing user engagement for implementing solutions using crowdsourcing principles.