IMPLEMENTATION OF MOBILE EYE TRACKING SYSTEMS FOR PREVENTING EMERGENCY SITUATIONS BASED ON MONITORING OF DRIVER BEHAVIOR

Krivoulya G., Tokariev V., Tkachov V., Hunko M.
Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

Modern studies have shown that lack of sleep and, hence, a slowdown in the reaction speed and drowsiness can be as dangerous as a state of alcoholic intoxication i.e. a delayed reaction and a decrease in concentration [1]. As a solution to this problem, an approach is proposed for the development of active safety systems (ASS) aimed at preventing emergencies based on monitoring the behavior of a vehicle driver and timely notification of the driver about the current situation by generating context-oriented recommendations.

The purpose of the report is to analyze one of the algorithms for solving such a problem as a context-oriented approach to creating a distributed emergency notification systems. The context-oriented approach consists in distributed accumulation, analysis of general information about the driver, context, his competencies and the history of interaction with the distributed emergency notification system (main components: a driver, a smartphone, a cloud service, users [2, 3].

The report has shown that using the mobile eye tracking system for preventing emergencies based on monitoring driver behavior can be used to create a new class of systems for monitoring the behavior of a vehicle driver while driving in order to identify dangerous conditions and form context-oriented recommendations. The received information about the recognized weakened attention or driver's fatigue as well as the context and information from the cloud service allow warning the driver beforehand and forming a recommendation for the driver to take measures for preventing an emergency.

References

1.   Барабаш О.В., Радченко В.А., Ткачев В.Н., Токарев В.В. Компьютерная мультибиометрическая система идентификации личности по совокупности биометрических признаков. *Телекомунікаційні та інформаційні технології*. 2017. № 1. С. 64-70. Режим доступу: http://nbuv.gov.ua/UJRN/vduikt_2017_3_10.

2.   Kayes A. S. M., Rahayu W., Dillon T., Chang E., Han, J. Context-aware access control with imprecise context characterization for cloud-based data resources. *Future Generation Computer Systems*. Vol. 93. Pp. 237-255.

3.   Hunko M.A., Tkachov V.M. Development of a module for sorting the ip-addresses of user nodes in cloud firewall protection of web resources. *Дев'ята міжнародна науково-технічна конференція «Сучасні напрями розвитку інформаційно-комунікаційних технологій та засобів управління»*. 2019. С. 30.