Technologies of artificial intelligence and smart microelectronics in mobile telemedicine

Topic:
Artificial Intelligence in Medicine and Healthcare

Author(s):
Ozar Minzer, Shupyk National Medical Academy of Postgraduate Education;
Volodymyr Romanov, V.M.Glushkov Institute of Cybernetics of the NAS of Ukraine;
Igor Galelyuka, V.M.Glushkov Institute of Cybernetics of the NAS of Ukraine;
Oleksandr Voronenko, V.M.Glushkov Institute of Cybernetics of the NAS of Ukraine;

E-mail Address:
o.mintser@gmail.com
VRomanov@i.ua
galelyuka@gmail.com
alexander.voronenko@dci.kiev.ua

Abstract:
The integrated digitalization of medicine, the use of the Internet of Intelligent Things, smart microelectronics and the networks of medical wireless sensors offers ample opportunities to remotely support the appropriate quality of life of chronically ill patients, the elderly, and athletes and professionals with heavy physical or mental workloads.
Based on this, at the present stage of development of artificial intelligence technologies and smart wearable microelectronics, the following basic directions of digital mobile telemedicine development can be identified:
1) Development and creation of wearable medical monitors, which are built on the basis of smart sensors for real-time measurement of basic medical parameters and integrated into a wireless sensor network.
2) Development and creation of wearable means for reading and primary processing of measured medical parameters, combined with smart sensors.
3) Development and creation of wearable means for transmitting parameters, which are measured by a mobile medical monitor and which characterize in real time the human condition, to remote decision-making centers.
4) Development and creation of remotely controlled wearable injectors for the introduction of the necessary drugs that support human life in case of critical condition of the patient.
The current state and prospects for the development of these tools in mobile telemedicine are discussed in the report.