

TELEMONITORING FOR PEOPLE UNDER HEALTH RISK

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Abstract

In the report it is shown how to improve the quality of life for elderly people, and for patients suffering from diseases associated with a risk to life but without physical or mental disability with the wearable medical sensors and computer devices. The examples of the means are given.

Due to development of the wearable medical electronics in everyday life, health care is undergoing substantial transformation not only in terms of data acquisition and diagnostics but also in terms of proposed services and provided protection. The rehabilitation medicine of the future needs to be highly flexible in order to satisfy customer demands for immediate first aid without superfluous restrictions of dynamic and uninhibited life style of modern people. The new health care conditions are desired for patients suffering from chronic diseases associated with a risk to life but without physical or mental disability such as insulin-dependent children, older persons with cardiac problems and hypertension, people suffering from asthma and severe allergies, victims of epilepsy and periodic fainting of sudden memory loss.

Automation of continuous health monitoring with wearable sensors and home devices makes it possible to anticipate or prevent emergency cases for many people suffering from major and chronic diseases. In a pandemic, when access to clinics is limited, patients at risk need to be provided with remote monitoring of their health status too.

Motivations of the work are following: improving the quality of life for elderly people, and for patients suffering from diseases associated with a risk to life but without physical or mental disability; no time/space caps in monitoring; first aid in 5-15 min on emergency; reducing the cost of monitoring and first aid to such patients; creating new collaborative models for clinics and ambulance service providers.

What is new of the work: first aid (active) instead of observing (passive); automated application of wearable injectors on emergency; emergency risk to life prevention actions instead of continuous treating/controlling chronic hypertension, atherosclerosis, obesity, and etc., and heterogeneous devices both of wearable and home types.

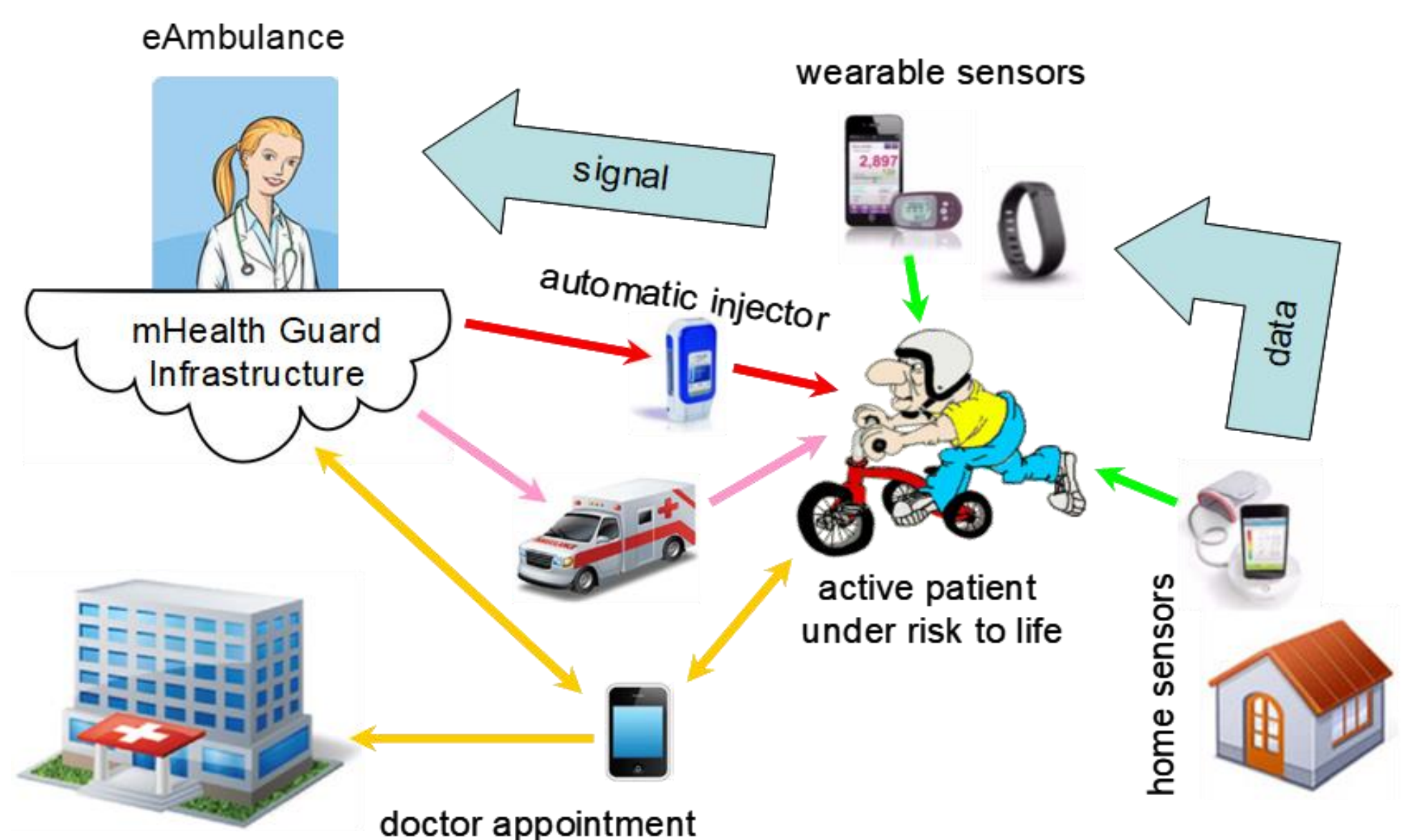


Fig . 1 Functional diagram of medicine wireless sensor application

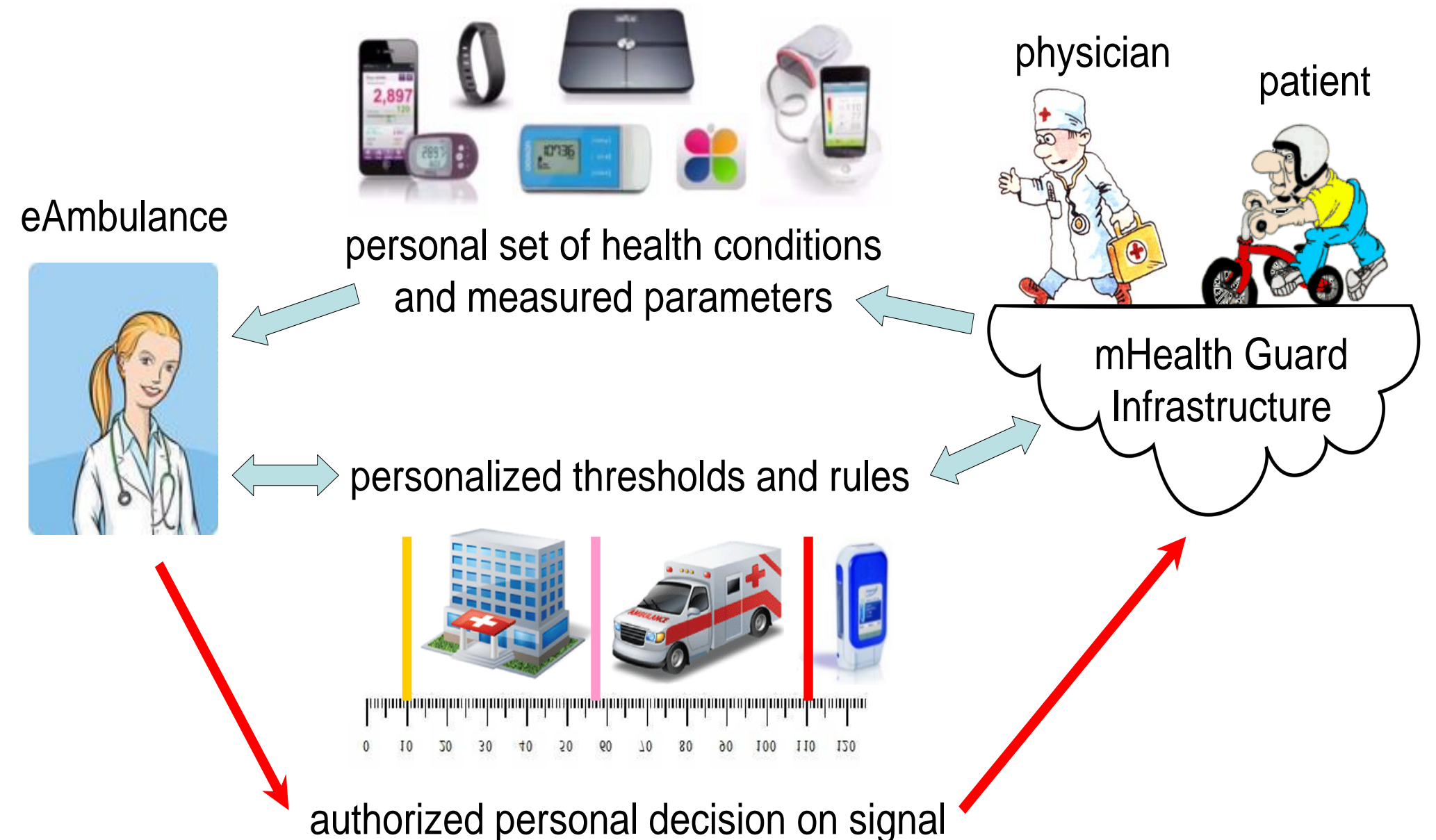


Fig . 2 Perspective model of ambulance employee interaction with eAmbulance users

Conclusion

In the report is proposed developing smart medicine system with closely integrate sensors, actuators, embedded memory and communication capabilities, energy harvesting and the capability to operate under various and harsh conditions and optimizing for application in wearable health monitor, based on results and experience of Glushkov Institute of Cybernetics of NAS of Ukraine.