A MULTI-CHANNEL COMPLEX FOR REMOTE IDENTIFICATION OF A HUMAN PSYCHO-EMOTIONAL STATE

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At present the methods of identification of a human psycho-emotional state are widely studied. In case of emotional experiences many physiological parameters related to involuntary vegetative responses change greatly [1, 2]. Among them are the state of cardiovascular and respiratory systems, body's temperature, level of sweating, excretion of exocrine and endocrine glands, the level of tonic muscle tension, skin resistance, etc. There is a large variety of contact methods (polygraph, for example) for the psycho-emotional state examination. However, if the examinee is aware of polygraph testing and has minimal skills he can affect the accuracy of results. Therefore, a development of remote methods of a human psycho-emotional state analysis is an up-to day task. In case of such covert testing the examinee would not try to cheat the device because he would not know about it.

The multi-channel complex under creation includes bioradar [3], video and infrared channels, that allow monitoring breathing, heart rate and temperature's parameters remotely and without applying any contact sensors. Joint evaluation of synchronized data in each channel provides additional information about the object in comparison with each method separately. In this case, reliability of the psycho-emotional state determination increases significantly.

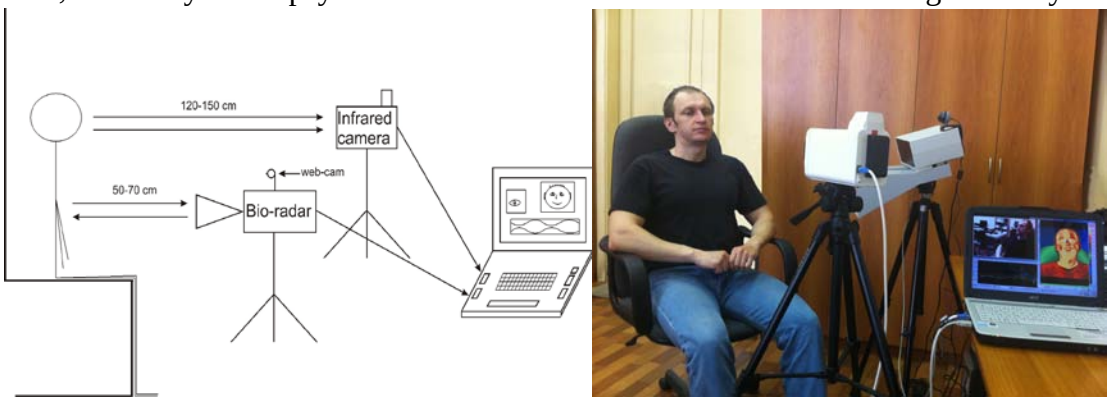

Fig. 1. Scheme of the experiment

Methodology of carrying out experiments with non-contact multi-channel complex was proposed (Fig.1.). 30 practically healthy examinees of both genders (21 ± 1 years (mean ± S.D.)) participated in the experiments. The experiment was divided into three stages: steady state; mental load; stress load.

The algorithms for estimation the variability of heart rate, breathing parameters and analysis of infrared pattern are being developed for the purpose of software creation for the remote determination of the psycho-emotional state.

References

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