

Development of an intelligent infrared heat cabin as an instrument to measure and improve vitality based on an AI recommendation system

Acronym: EWIVIKIS

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Project partners:



Clearlight Saunas Europe
GmbH



Hamburger Informatik
Technologie-Center e.V.



Technische Universität Ilmenau
Fachgebiet Biomechatronik

Project description:

Sauna bathing is a tradition that goes back thousands of years and is said to have a positive influence on body and mind. Similar to exercising, a regular sauna session will stress the cardiovascular system. Among other things, it raises the body temperature, improves blood circulation and oxygen saturation, and promotes healing and pain relief. However, to date there is no adequate way to quantify the positive effects in detail and to present them qualitatively. Furthermore, there is no possibility to evaluate the interaction of multiple vital parameters (e.g. body temperature, heart rate, skin conductance and blood pressure) and to use them in a targeted way to improve physical health or to promote preventive measures.

The aim of the project is to develop an intelligent infrared heat cabin as an instrument to improve vitality. In contrast to the traditional Finnish sauna, infrared heat cabins use infrared radiation to warm the body from within. The air temperature remains below 60 °C, which can be less strenuous for some users. A special task-adapted sensor system records various vital parameters during the session. An assistance system then processes the data and generates individual recommendations for the next sauna sessions and routines. The intelligent infrared cabin monitors and adjusts the heat application to quantify, qualify and individualize the effects described above. The system includes real-time recording of vital parameters and real-time control of the intensity and wavelength of the infrared radiation and the resulting temperature in the cabin. The objective of the Biomechatronics department is to select and implement the necessary sensor technology, to analyse and annotate the recorded parameters and to establish a control system for the cabin based on the recommended actions generated by machine learning ("artificial intelligence").

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