# OFFIS Transportation

OFFIS

HEE + Konect

Human Machine Interfaces that can be efficiently monitored and controlled are essential for running complex automated systems worldwide.

HUMAN EFFICIENCY EVALUATOR

With more and more machines and systems being built to run autonomously like production lines, large energy networks, or vessels, efficient system supervision and regular maintenance become the critical factors to foresee and prevent potential future system failures. Operator supervision and control handling differs not only by individual experience and knowledge but also on cultural aspects, local norms and training levels of operators. For system and machine manufacturers that deploy their systems worldwide it is often difficult and also very expensive to anticipate and consider these differences to better fit their systems for a local market.
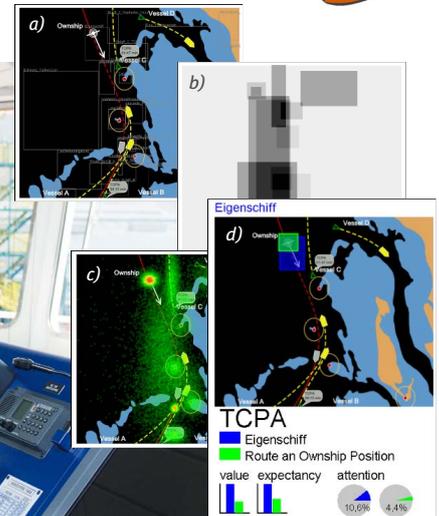

Analysis of HMI designs for vessel navigation: a) remote task analysis with ship masters b) model generation c) attention prediction d) semi-automatic analysis of user behaviour

Based on scientific research on psychological and physiological models of human behavior the Human Efficiency Evaluator (HEE) supports system developers to remotely analyze operators' system understanding and supervision behavior in an early system development phase. The tool works similar to an interactive interview: future operators get confronted remotely via a web interface with current and future user interface design ideas. Based on the answers collected from them, the tool captures and constructs the mental models of individual operators. Such a model reflects the individual operator understanding of the system which has a strong influence on how a future system will be used.

KONECT METHOD

By systematically analyzing these mental models we are able to identify misunderstandings and sources of human errors and suggest user interface adaptations targeted to better fit individual experiences and knowledge by considering their preferred way of supervision and control. For safety critical systems that require efficient (e.g. time-critical) monitoring and control we engineer user interfaces that are specifically optimized for fast and accurate perception especially in critical situations based on the Konect Method.
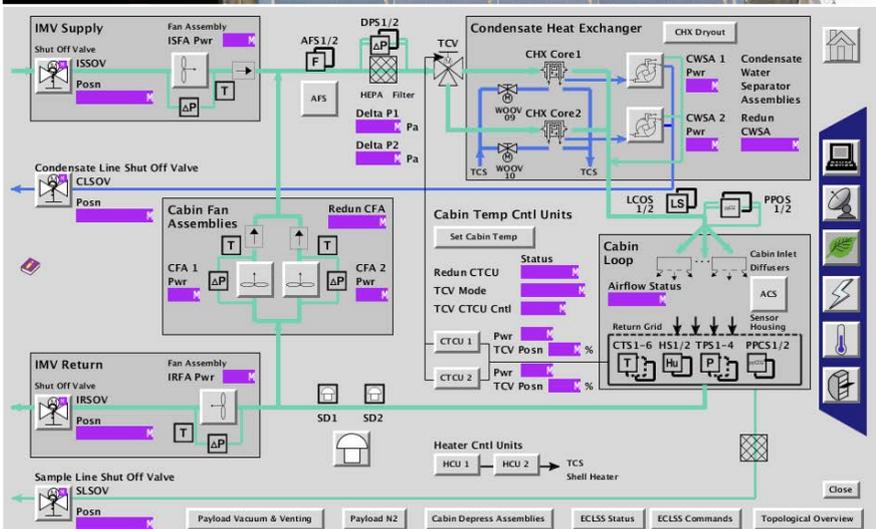
Human Error Analysis of ISS Columbus Air Ventilation System

CONTACT:

Dr.-Ing. Sebastian Feuerstack
Tel: +49 441 9722 509
E-Mail: feuerstack@offis.de

Dr. rer. nat. Bertram Wortelen
Tel: +49 441 9722 506
E-Mail: wortelen@offis.de

OFFIS - Institute for Information Technology Escherweg 2, 26121 Oldenburg, Germany

hee.multi-access.de
www.offis.de