

Safety of machinery – Perpetuating the systemic approach and the integration of human factors into machinery

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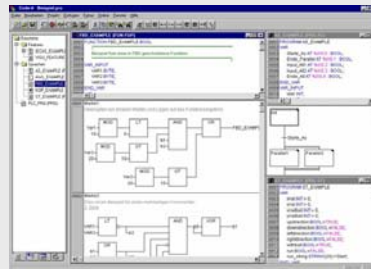
Introduction

The BGIA supports the German institutions for statutory accident insurance and prevention predominantly in solving scientific and technical problems relating to safety and health protection at work. This is done by means of research, development, testing of products, workplace measurements, participation in standardisation bodies etc.

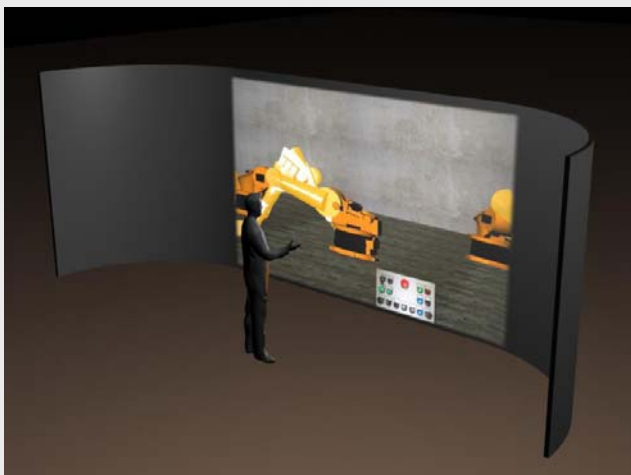
Accident prevention and product safety are major issues within the BGIA's fields of activity related to industrial products. In recent years the BGIA has been attaching growing importance to the aspect of human factors: This means that in the fields of accident prevention and product safety the influence of new technologies on humans and the way humans handle conventional and newer technologies are investigated constantly by a systemic and multidisciplinary approach. The following two examples highlight the conjunction of OSH-relevant aspects and new technologies and human factors issues. The presented projects show the wide spectrum of tasks as the first one concerns the field of consultancy and product testing and the other one is related to occupational accident investigation.

Fields of activity – example 1: safety-related programming systems

Nowadays, when dealing with safety of machinery, hard wired circuit technology is almost fully replaced by microprocessors and software. Safety functions such as emergency stop, motion control or safety door monitoring are fulfilled by high-performance components for numerical processing and corresponding programmes. Hence, safety-related programming systems should help compensate faults occurring during the software engineering of safety functions and help establishing a good software engineering practice. Therefore the BGIA promotes safety-related programming systems which are designed accordingly.



Fields of activity – example 2: accident analysis by consideration of human error



Within its supportive activities the BGIA is also asked to contribute to occupational accident analysis. Today accident analysis also covers aspects of man-machine-interaction and human error. It is beneficial for OSH issues to identify factors leading to spurious action.

Therefore the BGIA applies new technologies like virtual reality technology to assist in accident analysis. Most often the computer-simulated environments or objects in virtual reality are displayed on computer screens. These features allow the simulation of circumstances which led to occupational accidents without putting further workers at risk.