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Research Activities of the Center of Modern Control Techniques and Industrial Informatics

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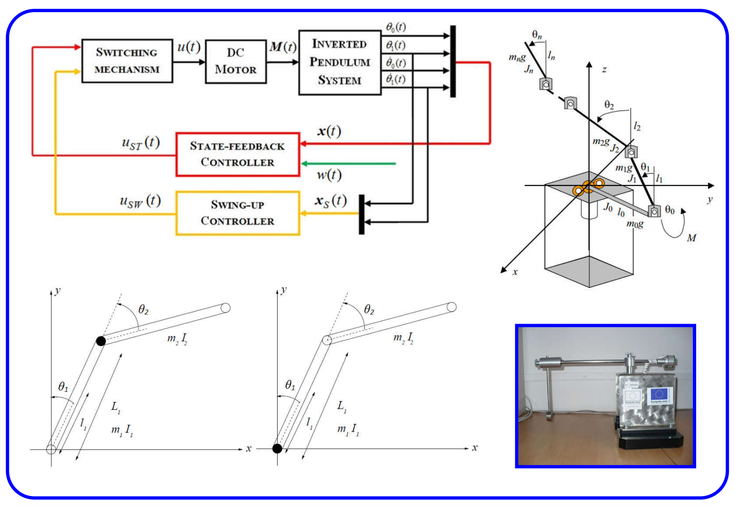
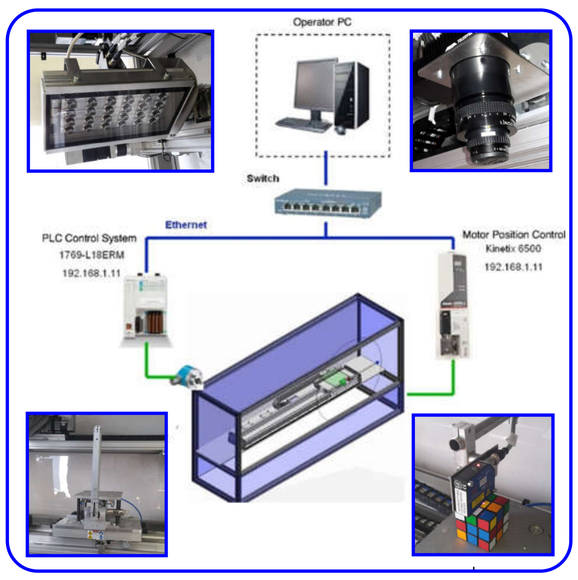
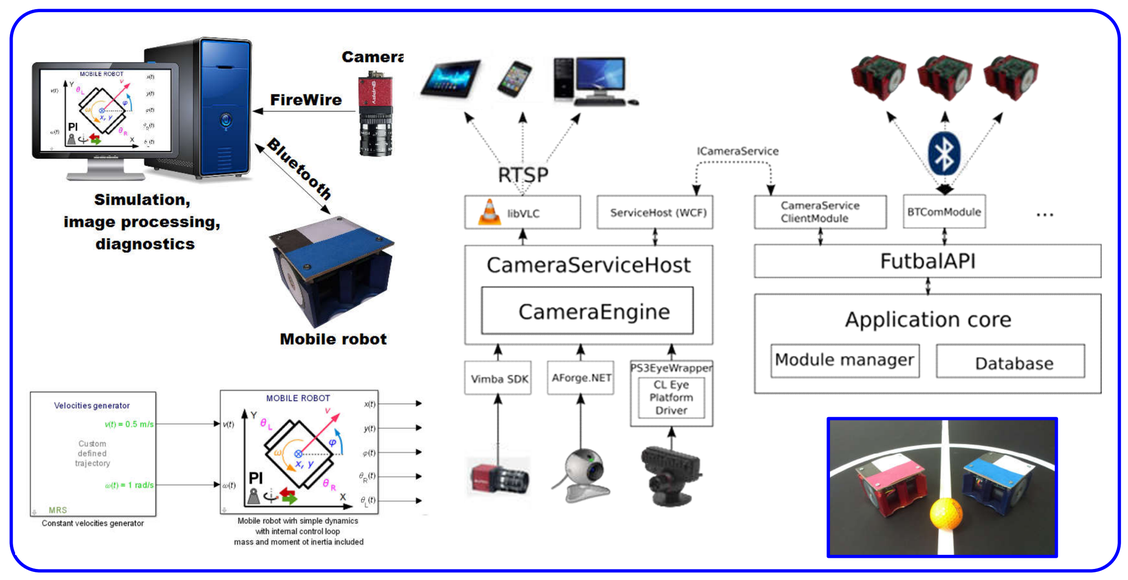
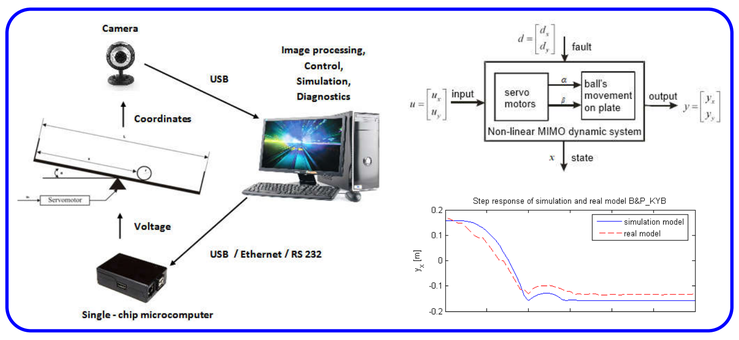
Abstract – One of the research activities of the Center of Modern Control Techniques and Industrial Informatics (CMCT&II) is the *Center for Nondestructive Diagnostics of Technological Processes* (CNDTP) implemented as part of the TECHNICOM project at the Technical University of Košice in accordance with the project's intention to improve conditions for transferring research results into practice. The focus of the Center's research is on nondestructive, contactless diagnostics of technological processes relying on image recognition systems where images are scanned by means of contact-free characteristics scanning through grayscale, color or thermovision cameras. This equipment is integrated into the control systems of technological processes and interconnected with the mechatronic parts of technological devices or production lines such as servo systems, mobile and manipulator robots. Our project therefore involves a wide range of technical, programming and networking resources which allow the development, experimental verification and adjustment of solutions related to monitoring, diagnostics and control of technological processes.

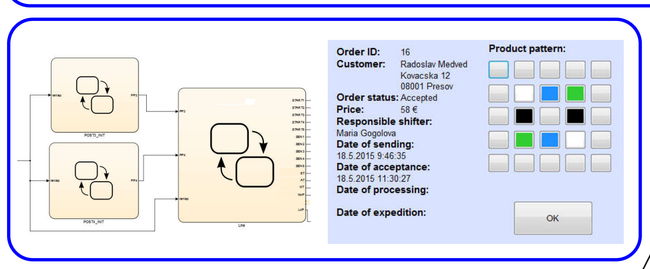
Keywords— camera systems, mechatronic systems, production lines, diagnostic systems

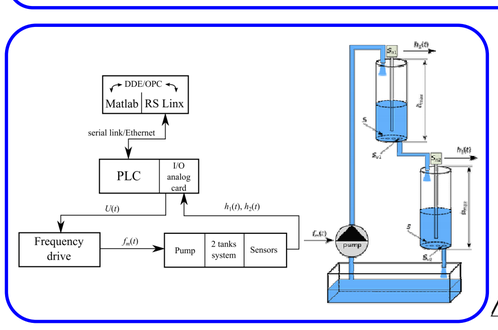


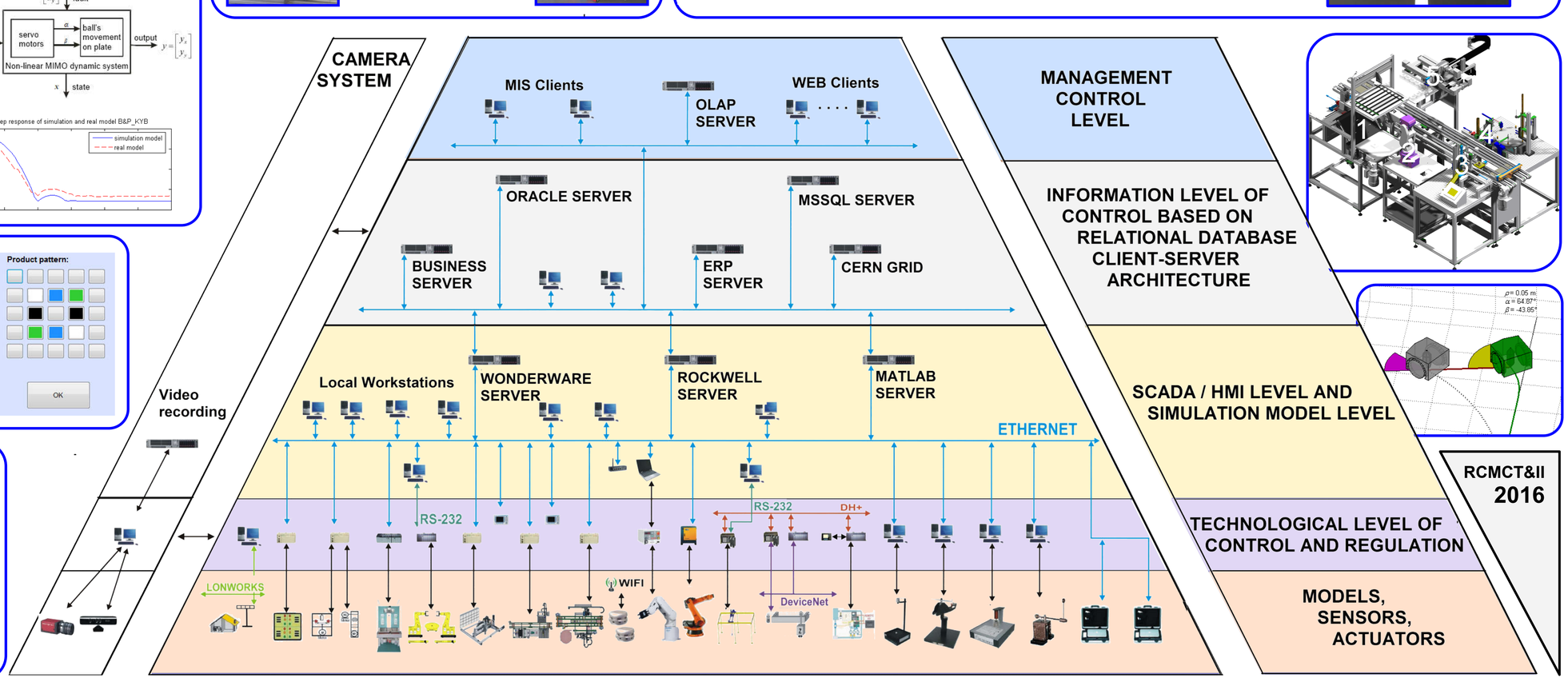


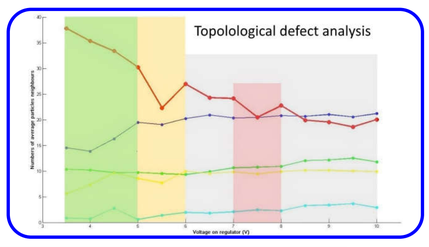




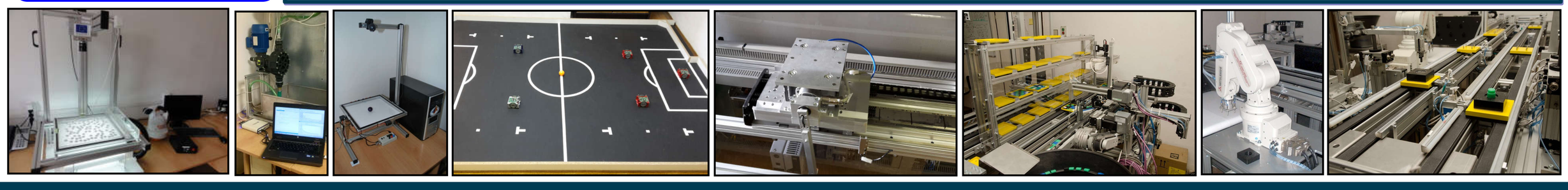








Hardware and software aspects of applications covering the areas of interest of the Center (**camera systems**, **mechatronic systems**, **flexible manufacturing systems**, **diagnostic systems**) are implemented as independent modules and Included in the control and information system of a technological process using standard interfaces. All steps of the control system design process correspond to the specific level of the proprietary **five-level pyramid scheme of a distributed control system**, described in more detail at center's webpage: **http://kyb.fei.tuke.sk/**.



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DCAI Department of Cybernetics and Artificial Intelligence

CAC Center for Applied Cybernetics

CMCT & II