ABSTRACTS

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MODELLING OF ELECTRONIC KANBAN SYSTEM BY USING OF ENTITY RELATIONSHIP DIAGRAMS

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Keywords: Electronic Kanban, ERD, information systems, design
Abstract: The Entity Relationship Diagrams are often used at the design stage of information systems to identify all elements of the future system and their relationships and dependencies. This stage is the most important phase of information systems designing as the future structure and functionality depends on it. The publication deals with the analysis of the applicability of the Entity Relationship Diagrams for the design of the enterprise information system, electronic Kanban system.

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EVALUATION OF IPT SYSTEMS APPLICATION USING SIMULATION

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Keywords: AGV, simulation, Simul8, Inductive Power Transfer
Abstract: In this paper a comparison is presented for different battery charging concepts of Automated Guided Vehicle (AGV) systems using simulation models. In the focus of our investigation was, what kind of benefits can Inductive Power Transfer (IPT) for an AGV-based material handling system have, which is increasingly applied today. The proper application of IPT systems lets the reduction of the necessary number of AGVs and balances their utilization level.

ABSTRACTS

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REACTION TO RISK IN LOGISTICS COOPERATION – RESULTS OF EMPIRICAL RESEARCH

(pages 77-84)

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Keywords: cooperation, risk, risk transfer, risk reduction, logistics service provider
Abstract: The risk of cooperation with service provider is associated primarily with non-performance of outsourced tasks or with performance not in line with the expectations of principal. Significant factors that affect the risk of cooperation with service provider result from the attitude of parties to cooperation, and also from the external conditions of this cooperation. Undistorted cooperation with logistics service provider, as well as undisturbed flow of goods play a special role in the delivery of goods to recipients. The objective of this article is to present the results of empirical research on reaction to the risk of cooperation with logistics service providers. It is part of the results of a wider research on management of the risk of cooperation with logistics service providers. The research is based on the assumption that attitudes of cooperating parties play a key role in dealing with risk.

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THE OVERLOOKED DEPENDENCIES OF MATERIAL FLOWS ON QUALITY AND QUALITY ASSURANCE

(pages 85-91)

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Keywords: material flow, material handling, quality, inspection errors, yield rates
Abstract: The flow of materials is a major constituent of in-plant logistics and similar factors govern resource requirements and material flows. In particular, quality factors and the configuration of the quality assurance – the inspections' system. Nonetheless, no study considers the association between and the dependencies of material flows on quality levels and the configuration of the inspections' system. The configuration of the inspections' system affect the structure of the material flow network by adding nodes – inspection stations, to it and changing the paths, accordingly. In addition, the quality levels, the configuration of the inspections' system, and inspection error rates significantly affect the volumes of material flows. These effects are quantified, demonstrated and discussed in this study.

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OPTIMIZING LOGISTICS ROUTES IN THE FIELD OF MAINTENANCE

(pages 93-101)

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Keywords: logistics, maintenance, optimization, Traveling Salesman Problem
Abstract: In the event that there is a requirement to provide maintenance with a service intervention somewhere in the area, it is necessary to select a service team which is optimal for the given task for all the assessed aspects. In this article, tests and methods based on TSP principles have been developed that are able to optimize route selection between key points. Due to the complexity of algorithm design, two approaches have been validated. The "Brute Force" method, which can provide information on the choice of the optimal route according to the specified parameters, and the "Nearest Neighbour" method, which is able to quickly calculate a large group of intermediate points, but only provides sufficient results. The aim was to create a methodology, guidance, and direction in evaluating route selection. That is why two basically opposed methods of TSP solution have been chosen, modified by the authors into a form suitable for implementation on virtually any platform. Although the design and program implementation was based on the MATLAB platform, no proprietary functions and libraries are used and the entire software design is implemented without the need for their use.