
ABSTRACTS

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STUDY ON THE IMPACT OF SMART AND INNOVATIVE DELOCALIZATION PRACTICES ON INTERNATIONAL TRADE (pages 41-46)

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Keywords: smart delocalization, international trade, optimization, supply chain engineering

Abstract: Faced with cumulative competition linked to the globalization of markets and increasingly stringent requirements in terms of performance, many companies are led to ask the question of delocalization part or all of their activities. Delocalization or Offshoring is a strategic decision that requires companies to review and reconfigure their methods of managing operations, especially those relating to the supply chain. The work objective is based on the key factors to be taken into account for the design of the supply chain in the context of offshoring in a context of demand for innovation. First, we address the problem of defining delocalization / Smart Delocalization and Supply Chain. Then, we review the literature to define the specificities of the problem of relocations and their impact on international trade, in particular the case of Morocco, and thus identify all the factors and constraints to be taken into account during the reconfiguration of the chain. supply chain in order to adapt it to the context of the practice of smart delocalization in an innovative context.

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PREDICTING ON-TIME DELIVERIES IN TRUCKING: A MODEL BASED ON THE WORKING CONDITIONS OF DRIVERS (pages 47-53)

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Keywords: truck drivers, lead time, arrival time, freight transportation, logistic regression

Abstract: Over a period of two years, 26.3 thousand road freight shipments were recorded. The records include information about truckload companies, drivers, and the causes of non-compliance and delays in deliveries. Logistic

regression based in working conditions as independent variables was used to predict non-compliance deliveries attributed to cargo drivers. Results show that vehicle type, medical coverage and social security, level of stress, work dissatisfaction, and transit time were strongly associated with out-of-time-delays in deliveries. The proposed model is a promising tool to improve the performance of truckload companies and it may motivate to benefit working conditions of truckers.

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APPLICATION OF NON-CONTACT PROFILOMETER IN AUTOMATED PRODUCTION

(pages 55-59)

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Keywords: automated line, profilometer, contactless, measurement, automatization

Abstract: The main thesis of this paper was to briefly describe the measurement technique using a non-contact laser profilometer. This paper is divided into several parts, where in the introduction, in the theoretical analysis, we described the necessity of using control mechanisms in automation. Then, in the second chapter, we have developed the technology of measurement with a profilometer and its application in scientific work and in practice. In the experimental part, we have defined the application of a profilometer in laboratory conditions on an automated line in the measurement of a part printed with a 3D printer. Finally, we evaluated the advantages and disadvantages of this device compared to mechanical measuring devices.

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ONLINE AND OFFLINE CONTROL OF COLLABORATIVE ROBOTS USED MIXED REALITY

(pages 61-66)

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Keywords: collaborative robot, ABB Yumi, augmented reality, HoloLens 2

Abstract: The presented article points to the combination of mixed reality with advanced robotics and manipulators. It is a current trend and synonymous with the word industry 5.0, where human-machine interaction is an important element. This element is collaborative robots in cooperation with intelligent smart glasses. In the article, we gradually defined the basic elements of the investigated system. We showed how to operate them to control a collaborative robot online and offline using mixed reality. We pointed out the software and hardware side of a specific design. In the practical part, we provided illustrative examples of a robotic workplace, which was displayed using smart glasses Microsoft HoloLens 2.

In conclusion, we can say that the current trends in industry 4.0 significantly affect and accelerate activities in manufacturing companies. Therefore, it is necessary to prepare for the arrival of Industry 5.0, which will focus primarily on collaborative robotics.

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APPLICATION OF VIRTUAL REALITY IN THE DESIGN OF PRODUCTION SYSTEMS AND TEACHING

(pages 67-70)

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Keywords: VR, design of manufacturing systems, Siemens Tecnomatix, AutoCAD, Simio

Abstract: The content of the contribution is a description of the virtual reality use in the design of production processes and in the teaching process. The aim of the article is to describe the methodology for 3D virtual design of production systems as well as a description of the creation of interconnectors for simulation tools Siemens Tecnomatix, Simio, AutoCAD and Dassault systems by using the moreViz tool. The use in the design of production systems lies precisely in the ability to realize the projected space on a scale of 1:1, which will allow maximum use of space and its orientation. The effect in teaching lies in a better understanding of the elements that can be displayed in fully immersive virtual reality, which helps to teach faster and engage spatial imagination.
