

The application of service robots for logistics in manufacturing processes

Karabegović, I.^{a,*}, Karabegović, E.^a, Mahmić, M.^a, Husak, E.^a

^aUniversity of Bihać, Faculty of Technical Engineering, dr. Irfana Ljubijankića bb., Bihać, Bosnia and Herzegovina

ABSTRACT

The introduction of service robots AGVs (automatic guided vehicles) into manufacturing processes is one of the more important qualitative shifts in the automation of transport operations in the manufacturing, assembly lines, as well as storages. Given the large number of applications, service robots in logistics offer a wide range of different technical and exploitative solutions. Service robots AGVs are primarily used for the realization of internal transport processes. Service logistics robots in the manufacturing processes have a very large estimate of the significance of factors when it comes to physical labour reduction. The investment in installing service robots is amortized much faster provided that the service robots work 24 hours a day. The investment in service robots for logistics is repaid within 2-3 years, and such a system works for about 15 years, operating costs are around 2-4 % annual investment, operation availability is approximately 98.5 %, a high productivity, optimized costs and processing time. This paper presents the annual application of service robots in logistics, as well as applications of AGVs service robots with different structures in the manufacturing processes, in confined areas and open spaces, such as shipping containers in ports.

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**Corresponding author:*

isak1910@hotmail.com
(Karabegović, I.)

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Uporaba servisnih robotov za logistiko v proizvodnih postopkih

Karabegović, I.^{a,*}, Karabegović, E.^a, Mahmić, M.^a, Husak, E.^a

^aUniversity of Bihać, Faculty of Technical Engineering, dr. Irfana Ljubijankića bb., Bihać, Bosnia and Herzegovina

POVZETEK

Uvajanje servisnih robotov AGV (avtomatsko vodeni vozički) v proizvodne postopke je eden izmed najbolj pomembnih kakovostnih premikov za optimizacijo transportnih operacij pri proizvodnji in montažnih linijah ter tudi pri skladiščenju. Zaradi raznolikosti industrijskih opravil ponujajo servisni roboti široke možnosti uporabe in različnih tehničnih rešitev. Servisni roboti so bili primarno namenjeni za notranji transport. Z uporabo servisnih robotov se lahko bistveno zmanjša potreba po fizični delovni sili. Če servisni roboti delujejo 24 ur na dan se investicija hitro povrne, praviloma v času od dveh do treh let. Takšni servisni roboti za logistiko delujejo približno 15 let, stroški obratovanja so okoli 2-4 % letne investicije, razpoložljivost je približno 98.5 %, so visoko produktivni, delujejo pa na optimalen način z vidika stroškov in časa obratovanja. V prispevku je prikazana uporaba servisnih robotov v logistiki, kakor tudi možnosti uporabe sistemov AGV v različnih proizvodnih okoljih, v zaprtih prostorih in tudi na prostem, kot je npr. uporaba teh sistemov za potrebe pristaniščnih kontejnerskih terminalov.

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PODATKI O ČLANKU

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**Kontaktna oseba:*

isak1910@hotmail.com
(Karabegović, I.)

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