OPEN ACCESS Freely available online

Advances in Automobile Engineering

ISSN: 2167-7670

Commentary

Advanced Automation and Robotics for Intensive Manufacturing

Abdul Sheik *

Department of Engineering, University of Delhi, Delhi, India

DESCRIPTION

Over the last few decades, industrial automation has progressed through several stages, from single-line automation to full-scale computer-integrated manufacturing systems, replacing many labor-intensive manual processes and increasing the amount of automation in numerous industries. New digital technologies such as the Internet of Things (IoT), Cyber-Physical Systems (CPS), and creative concepts such as the factory of the future, Industry 4.0, and Cloud Manufacturing (CMfg) have fueled the desire for further automation in the manufacturing industry to preserve competitiveness.

Advance automation, robotics, and AMT in manufacturing

Automation is frequently viewed as the best way to produce cost-effective high-volume manufacturing while also relieving humans of monotonous, heavy, or risky labour. However, research has shown that increasing automation levels in unpredictable production scenarios can cause production disruptions. As a result, understanding the precise level of automation required to maximise throughput while taking efforts to increase the efficiency of labor-intensive processes is critical when deploying robotics and automation solutions in high-volume, labor-intensive manufacturing businesses. Many authors have emphasised the significance of determining suitable levels of automation. Advanced Production Technologies is a term that refers to the use of Automation and Robotics in Manufacturing (AMT). The use of AMT is intimately tied to industrial automation initiatives.Even though there is a surge in interest in smart factories, factories of the future, Cloud Manufacturing (CMfg), and Industry 4.0 at the moment, most of the sophisticated manufacturing systems available today are semi-automated, and humans still play a critical role in dealing with unforeseen scenarios. To accomplish flexible and efficient production, modern manufacturing technology and qualified people are equally important. Nonetheless, rising demands for personalization, speed-to-market, and product complexity to meet consumer demands have resulted in increasingly complicated manufacturing systems. Furthermore, rising wage rates in developing countries, as well as market competition, have driven factories to boost their level of automation year after year. With the advancement of the new technologies, modern-day manufacturing automation is focused on the possibility of end-to-end horizontal integration of processes using digital technologies such as the cyber-physical systems, the machin-to-machine communication, internet of things, cloud computing, and wireless sensor networks to achieve a higher level of automation, flexibility, and efficiency on the production floor or across multiple distributed manufacturing plants. According to an expert, given the newest advancements in smart digital technologies, industries are eager to participate in adopting low readiness technologies if there is a substantial financial return. CPS and CMfg are seen as critical facilitators of the fourth industrial revolution.

CONCLUSION

The CSFs of deploying automation and robots in a labor-intensive, high-volume industrial context. This study offered six important topics of CSFs pertinent to the effective adoption of automation and robotics in a high volume labor-intensive industrial setting using a combination of literature search and interviews with key experts connected to the topic of study. It was also demonstrated that implementing automation and robotics in a production setting is a difficult process that cannot be guaranteed by a single or two factors. Instead, several aspects must be evaluated, and the elements are frequently connected, as demonstrated by the six CSFs themes. These will be useful for academics and industry practitioners when considering CSFs and the development of manufacturing organization strategies related to automation and robots.

Correspondence to: Abdul Sheik, Department of Engineering, University of Delhi, Delhi, India, E-mail: sheikabdul343@gmail.com

Received: 08-Jul-2022, Manuscript No. AAE-22-17366; **Editor assigned:** 12-Jul-2022, PreQC No.AAE-22-17366 (PQ), **Reviewed:** 26-Jul-2022; QC No.AAE-22-17366, **Revised:** 01-Aug-2022, Manuscript No.AAE-22-17366 (R); **Published:** 08-Aug-2022, DOI: 10.35248/2167-7670.22.11.197

Citation: Sheik A (2022) Advanced Automation and Robotics for Intensive Manufacturing. Adv Automob Eng. 11: 197