Empowering Artificial Intelligence and Cyber SecurityChallenges in Smart Manufacturing

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Abstract:SM (Smart Manufacturing) is a broad category of manufacturing that employs a computer-based integrated manufacturing system, with a higher end of new adaptability and quick change in design structure, along with digitalization and effective workforce training. It is necessary to incorporate new techniques in the SM system to adapt to the changes in the present system. Smart factories increase the output of the unit, quality, andconsistency maintenance by satisfaction for the customers. Smarter technology helps to get information with the help of computed technology in the organization through which the information/data will be recorded periodically. The Smart Manufacturing systemwhich is very safer for the environment is known to us as Green Manufacturing (GM). Green-tech or Green Manufacturing is an umbrella term which comes under the same branch in one way or another which is used in several technologies or the field of science in order to bring up with products which are eco-friendly for the environment. GM is the most needed one which may lead to a higher level of development in the aspect of the economy. Moreover, the confidentiality of the information and the vulnerabilities they come with SM systems is also needs to be solved when it comes to Cyber security. Hence, we have proposed an efficient green manufacturing approach in SM systems with the aid of Artificial Intelligence (AI) and cyber security frameworks. The proposed work employs a Dual stage ANN to find the design configuration of SM systems in industries. Then, for maintaining the data confidentiality while communication, the data are encrypted by using 3DES approach.

Keywords: Smart manufacturing, Artificial Intelligence, Cyber Security, Confidentiality, Encryption.

1. Introduction

The advanced technological revolution and revolution in industries are gaining more attention. The new era is getting enhanced with the usage of the internet along with the integration of AI in it which is responsible for bringing in more changes in the upcoming time in several fields. The other technologies rapped up with the internet and AI in their application will bring advancement in that particular field and will definitely be a game-changer of that corresponding place. When compared to other industries manufacturing sectors are capable of providing a livelihood for many. The fusion of several technologies like communication, intelligent-based, product-based technology in manufacturing industries is considered as a game-changer in that sector in terms of a newapproach in manufacturing and its entire system.

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