

Augmented reality: capabilities and challenges in machining industry aligned with industry 4.0

ABSTRACT

Augmented Reality (AR) currently plays an important role to undertake the challenges in integrating technologies to expedite the march towards Industrial Revolution 4.0 (IR 4.0). Therefore, the machining industry relies on new design concepts and methods of an innovative human-machine interaction application that overlays virtual components on a real-world environment. Nowadays, many potential applications being developed in different fields, from gaming activities to everyday life, education and industrial sectors. This paper reviews and investigates the capabilities of AR as new emerging technologies that will improvise machining operation to embrace Industry 4.0 (I4.0) for product precision, cost and maintenance. Due to the massive implementation, there are still several challenges that lie ahead include resources, facilities and etc. The I4.0 has been considered a new industrial stage in which several emerging technologies are converging to provide digital solutions. In future, AR will change the perception of people viewing the world and its objects and to help us see, hear and feel our environments in various fields. As a result, AR will support and enhance the psychomotor phase in human skills development as well as a tool of cybergogy concept for engaging learners online.

Keyword: Augmented reality; Machining; Human-machine interaction; Cybergogy; Industry 4.0