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Augmented Reality Applied to Gearbox Assembly in Designing Courses

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Abstract

The article presents the use of augmented reality (AR) technologies in the context of the educational process. Combining all the AR fragments with the digital teaching method creates an unprecedented curriculum presentation to pupils and students. AR provides an opportunity to bridge the gap between theory and practice by enriching learning materials with interactive three-dimensional (3D) models, animations and multimedia content that can be directly visualised in the students' real environment. This technology is the challenge of a digital society. It enables the creation of realistic simulations that encourage hands-on learning, exploration and discovery of concepts that would otherwise be difficult to understand through traditional teaching methods. Research shows that AR increases student engagement, promotes collaborative learning, and improves information retention. The article aims to implement the created gearbox into AR using 3D computer-aided design (CAD) software and AR software Vuforia Studio. As a result of the usage of AR, it is possible to look at the individual components of the gearbox, such as gears, bearings or shafts, thanks to which higher intellectual curiosity and engagement of students is achieved.

Keywords: augmented reality, application, educational process, transmission mechanism