

CREATING 3D AND AUGMENTED REALITY ENVIRONMENT FOR TEACHING AND LEARNING GEOMETRY USING GEOGEBRA SOFTWARE

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Abstract: In this work we will focus on using the dynamic mathematical software GeoGebra to generate 3D environment for the purpose of improving the teaching and learning of geometry. We will explore the GeoGebra 3D module and its role in creating 3D and augmented reality environment that enhances the understanding of space, mathematical objects, and their relationships.

The various geometrical problems will be discussed, and also 3D GeoGebra tools which can be used for creating appropriate teaching and learning GeoGebra materials. The different ways will be highlighted in which these materials can be manipulated and the objects displayed and observed.

Additionally, we will present a special mode in GeoGebra that enables working with 3D glasses, and further with the augmented reality and explain those GeoGebra features and the exciting possibility of creating a real 3D environment.

Keywords: Geometry, GeoGebra, 3D models, Augmented reality