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COMPUTER AIDED DESIGN IN 3D MODELLING AND VISUALISATION OF ENGINEERING OBJECTS

Keywords: *AutoCAD, 3ds Max, Revit, 3D modelling, visualisation, rendering.*

Computer aided design improves significantly and uprates designers work. 3D modelling, visualisation and rendering computer applications give us an additional possibility to check the correctness of created engineering projects, conducting detailed analysis of daylight and preparing advanced visualisations and animations. The work presents the most important functions and features of the programs of this type (AutoCad 2014, AutoCAD Civil 3D, 3ds Max Design) used during the process of designing a sports facility.

The subject of the work was the visualisation the football pitch together with the grandstand, the fence, the pedestrian walkaway and the access road with two lanes and the pavement for pedestrian traffic on both sides of the road.

The starting point was creating a 3D model of the area based on the map for designing purposes. The contour lines and the characteristic points after the proper conversion were turned into the foundation on the basis of which it was possible to begin the process of creating the existing area.

The location of the main road and the pitch were placed on the model and then the terrace line was set out. After setting all of the parameters of the carriageway both on the plan and the longitudinal section, the corridor of the main road and the pitch area together with the bank for the grandstand were modelled. Then the grandstand, the players' bench, the goals, the ball stopping fence and other elements with the aim to making the scene look real.

Another process under went the modelled objects was texture application. The materials were specified, the parameters of light dispersion and reflection, natural lighting, smoothing and many other settings were adopted meant to give the modelled objects the look as close as possible to the real one. The final effect of the visualisation process of the football pitch together with the access road is shown in the Fig. 1

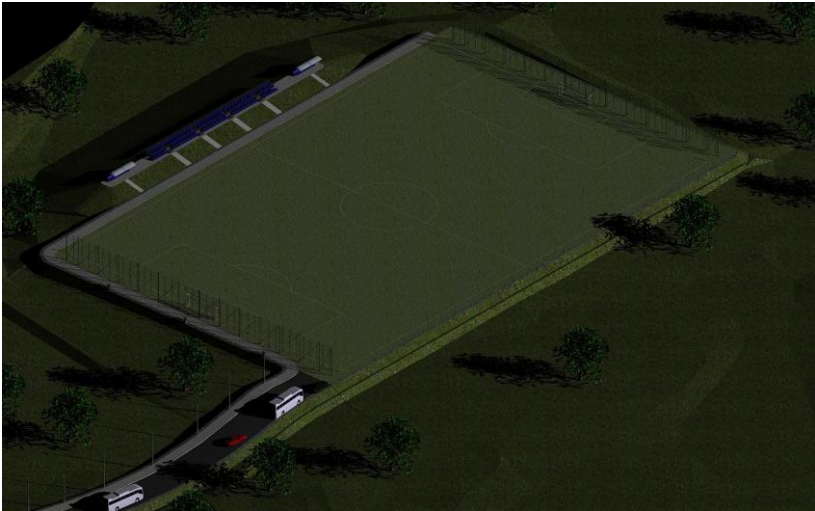


Fig. 1. The final effect of the visualisation process of the football pitch together with the access road

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