3D MODELLING OF INSTRUMENT TRANSFORMER

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ABSTRACT

This article outlines description of utilization of new CAD technology by creation of 3D models of current instrument transformer CTT 25. I deal here with animation of current transformer. This task is solved with the help of modern computer program 3ds max 7. As a result are sample pictures of electrical parts from company KPB Intra s.r.o. - current transformer CTT25.

1. INTRODUCTION

The computer program „3ds max"(earlier „3D Studio MAX") is the most worldwide extended animation and visualization program. It is intended for creation of casual effects, animation of features and creation of computer games. It offers interactive environment, quick rendering. Fully adaptable and open architecture provides absolute creative freedom. The most extended library is available for the other 3ds max additional applications plug-in of the team-center developers.

2. 3D GRAPHICS AND MODELING

The modeling and 3D graphics are created a specific object computer model. This computer model enables afterwards to work with given object as this object would be real and often much more - we are able to make things, which would be really impossible to carry out.

Specify the branches, in which the 3D graphic trench's today is already impossible. 3D graphics or rather results of its usage enclose us from all quarters. All consumer goods are already designed with the help of computers and 3D graphics. Special effects in films cannot be distinguished from reality, commercials in television present goods that don't exist yet and reporters are in studios that were never built. Architect will show to investor, how will take effect the house in surrounding build-up area, and he even let come throw the interior. The composite technological units don't manage without detailed 3D model too. 2D drawings are not able to intercept complicated process and real state of operating. Branches, in which is 3D graphics used the most are machinery and electrical, architecture and urbanism, entertaining and advertising industry, chemical and oil industry.

1.1. OVERVIEW OF 3DS MAX INTERFACE

3ds max interface is interactive multitasking environment susceptible work in layers. Particular tools 3ds max are very efficient and complicated, Designers of company Kinetic developed considerable effort by placement of tools for routine work regard to active access ability. Composite editor of particular parameters, which are in separate tucks and it is available by means of several clicks. 3ds max makes easier creative process by the series of menu for quick and accurate placement of objects, edits of its shapes and sizes. It concerns as unique and very useful part of interface.

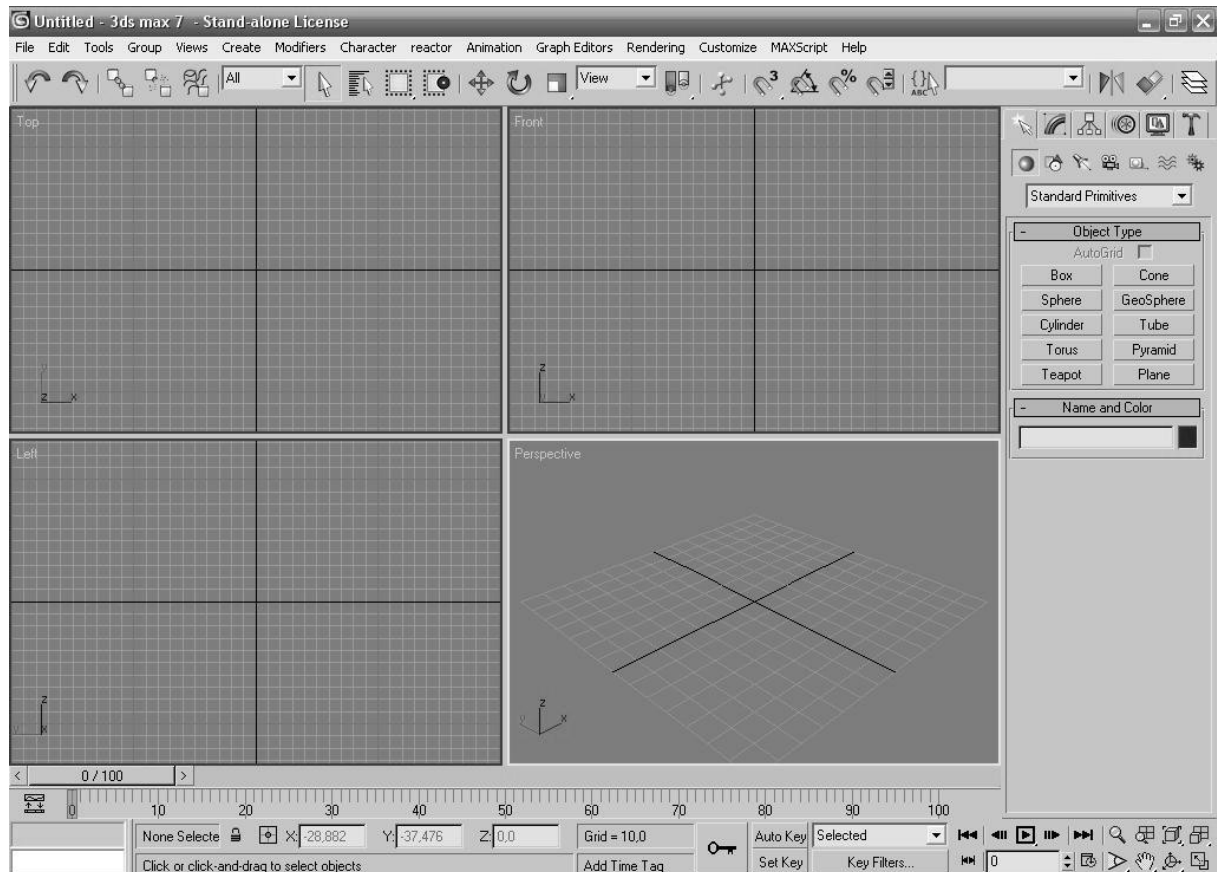After startup 3ds max will be displayed interface on the monitor as is described at the following picture.

Figure 1: Starting window 3dsmax7

Interface 3ds max is created from the groups of tools associated according their function.

For imagination helps the imagination of very good sorted case for tools with separated boxes for hammers screwdrivers etc. The most powerful aspect of 3ds max is ability to adjust the object by many different methods after his creation. These adjustments are enacted in lower layers of 3ds max panel of commands.

1.2. CUT OF WORKING SURFACE AND VIEWS

View is at 3ds max simply defined as summary of objects in the screen in given moment. Detached views could be in cut out of working surface, which represents windows of 3D world interface of working surface 3ds max. Cut out of working surface in 3ds max are

four rectangle regions (see picture). In the left top corner of cut out of working surface is its title. These titles are described by white text (see picture).
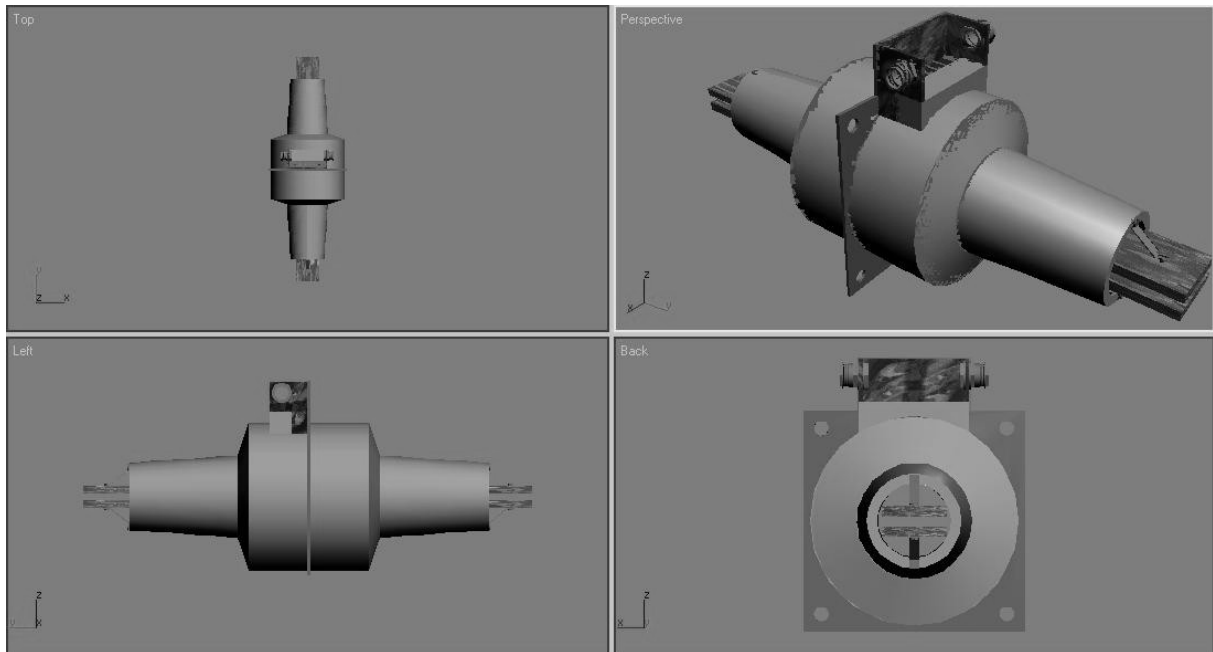

Figure 2: Working surface

Cut outs of working surface are named according their actual content as example TOP, FRONT, PERSPECTIVE etc. If the user wants to work effective with 3ds max, he needs much more exact definition of views. Views are divided in 3ds max to 3 ground types- orthographic, perspective and views from camera. These types of views are designed for presentation of specific angle of view to the modeled scene. Coordinate axis are different for separate types of models. It looks like illusory for the first impression that each view works with different relative setting of coordinates.

1.3. ORTHOGRAPHICAL VIEWS

Orthographical views are named according side, from which we can observe the object: front, right, left, top etc.

1.4. PERSPECTIVE VIEWS

Due to curvature of eyeglass we perceive surrounding world from perspective view. This ability helps us to admeasure depth, distance and relative size and position of objects in our visual field. Arbitrary rectangular view in 3ds max is possible to change to perspective and to simulate manner of view of human eye to real world.

1.5. VIEWS FROM CAMERA

Views from camera are special views simulating optical properties, mechanism and control of film cameras.
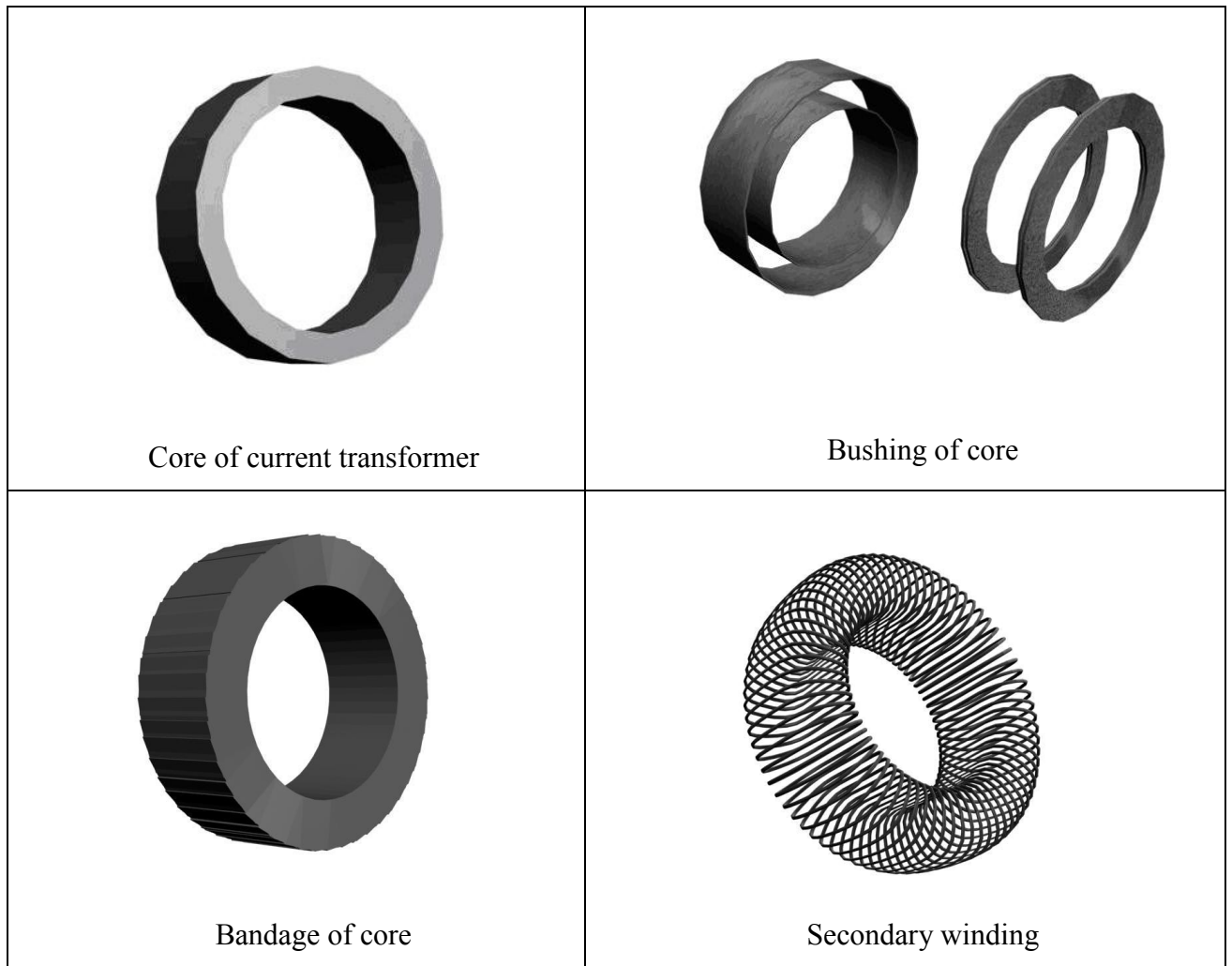
Images of models

Core of current transformer	Bushing of core
Bandage of core	Secondary winding

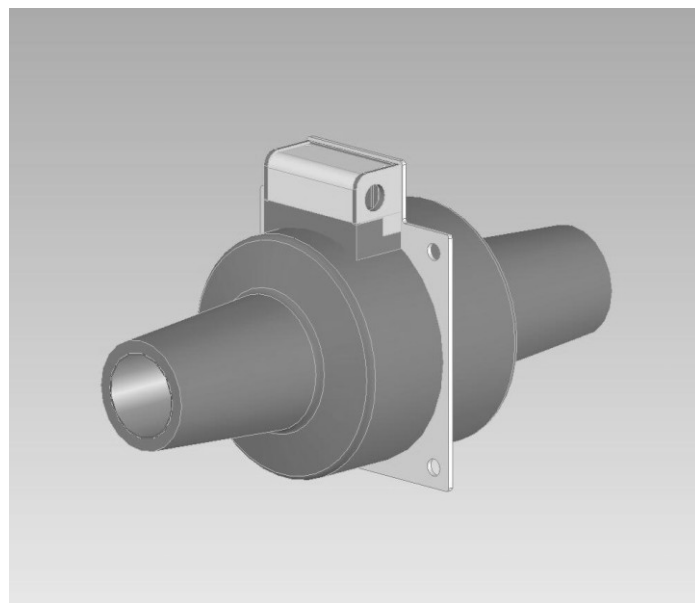**Figure 3**: Image of current instrument transformer CTT 25

Figure 4: Image of current instrument transformer CTT 25

3. CONCLUSION

I upgrade my experience at branch of computer graphic applied to electrical practice and at branch of instrument transformers within the elaboration of article

The largest contribution was creation of animation and drawing of model of instrument transformer CTT25 from company KPB Intra s.r.o. in program 3ds max7.I came to know a lot of drawing of models and creation of models about creation of parts or part of specific machine or device. The model of current instrument transformer and the presentation video is the result of my work

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