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APPLICATION OF VISUALIZATION TO IMPROVE THE UNDERSTANDING OF THE CONTROL SYSTEMS' FUNCTIONING

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Introduction

To improve the quality of lectures it is a good idea to use the computer and projective device, that allows to add the dynamic stages and sound to a usual slide - show. All that we call multimedia. The main advantage of such approach is, that a lot of the people can watch it at once. Even if the audience very large, everything will be visible from anywhere places. Besides, the students with good computers can use the same material at home. It will lower need in lectures and this time can be devoted to practical lessons. Nowadays such equipment is very expensive, and though the price reduces every day, for many and especially for the students, it remains inaccessible, as against hypermedia, or hypertext information.

The information interchange between the students is a thing of a great importance. Some problems arising with engineering education such as bad understanding of dynamics of processes without an interactive visual information.

1 Technologies for teaching & learning

Technologies, which are used in computer added education, are shown on fig. 1. Hypertext or hypermedia are suitable technologies which allow students to move course materials on-line, but without the need for the same level of screen design that occurs in a multimedia package.

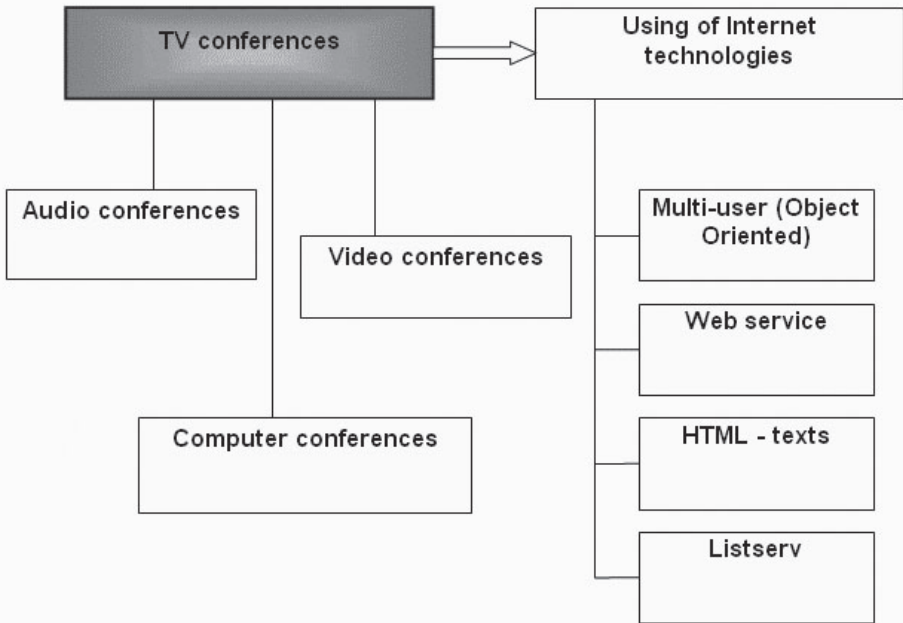


Figure1 - Technologies for computer added education

2 General educational system organization

Computer educational course (CEC) is good structured (fig.2). It consists of all necessary information. If students have used almost any windows based software, you will be familiar with on-line help. Typically students are able to:

- access the topic in a hierarchical way;
- search for keywords & then jump to a particular topic;
- backtrack through the topics visited.

First of all CEC provides the theoretical information – lectures (fig.3). Chapter “Design infor” shows examples of real control systems and news in their developing (fig.4).

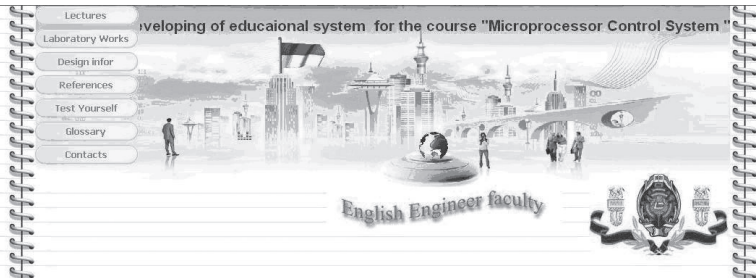


Figure 2 - Main menu

3 Roles for Visualization

Engineering is by its nature a visual business. It relies on drawing to convey information for construction & maintenance purposes & for communicating ideas between coworkers. It is the authors experience that many students have difficulty with these types of analysis exercises because they have trouble translating a three dimensional world into two dimensional representations. That is why the laboratory works are oriented to developing of general system parts simulations.

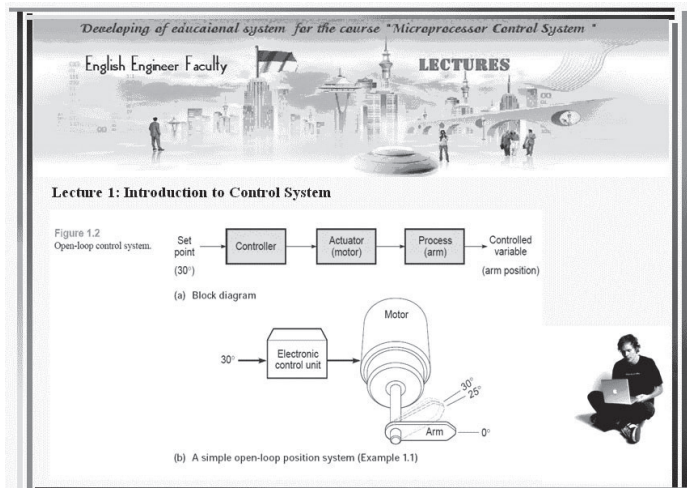


Figure 3 - Example of the Lecture's presentation

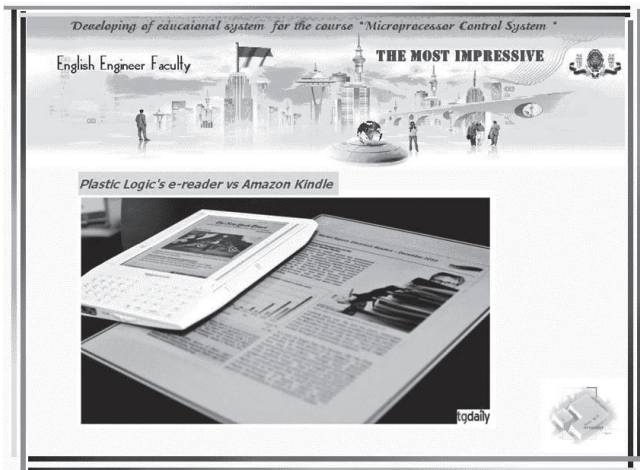


Figure 4 - Example of the news in control system design

Conclusion

Educational system is developed and ready for using. The next step is application to the educational process of EEF. We hope that CEC helps students to get good theoretical knowledge and practical skills in control system design.

Literature

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