Interactive Electronic Textbook for Teaching Electrical Circuits

Engaging and Effective

Methods and systems for an interactive and innovative graphical user interface (GUI) for creating circuit schematics and generating netlists, circuit symbolic solving and instant simulated solutions.

Background

Engineering is a discipline in which problem solving skills (e.g. design and critical thinking) are of paramount importance, and where a focus on mere knowledge is not sufficient. The nature of engineering course material requires innovative learning/teaching techniques to grasp and understand the basic concepts. Typical simulation tools utilized by students in the electrical engineering field do not help them to understand the ultimate nature of circuits. Additionally, current circuit solvers available online are of limited capabilities. These techniques do not develop enhanced problem solving skills or design skills, nor sharpen critical thinking of the students.

The current invention introduces an interactive, real-time, web-based multimedia learning environment supported by innovative and effective educational methodology to improve undergraduate and graduate engineering curriculum. This interactive learning style uses materials that combine graphics, modeling and simulations in an engaging environment which will allow the user to grasp and understand the concepts. Students can utilize the user friendly graphical user interface (GUI) to remotely access a server controlled by educational institutions such as universities or electronic book publishers in order to draw, symbolically solve, and instantly simulate electrical circuits.

Lead Inventor

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Also see “Electronic Book Operating System”

UCF ID#'s 31309, 32626, 32627

Benefits

• Interactive, real-time, web-based multimedia learning environment
• User friendly GUI
• Simulate electrical circuits

Application

The technology can be utilized by textbook publishers and software developers to create a truly engaging interactive educational tool for engineering students. The software could be sold independently, as a companion to an educational text or even made available on the World Wide Web via subscription.

Tech Fields

Educational Tools, Software

Keywords

eBook, electronic book, digital, web-based learning, instructional tool, educational tool

U.S. Issued Patents

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