

ABSTRACT

This dissertation studies and implements an Intelligent Multimedia Help System for Arithmetic (ARITHELP). The major problem currently faced by the manual references is time constraint. Therefore, the goal of this thesis is to provide a quick and easy help for students using multimedia concepts. This system can be categorized into an expert system type as it transforms an expert knowledge into the system. It consists of 4 components which are an expert model, tutor model, student model and interface model. Overlay model is used as a technique to represent knowledge in student model whereas the pedagogical model is used to model a pedagogical knowledge that show steps in teaching and helping for the system. Several examples of intelligent system such as Intelligent Web-Based Help Desk System, ISIS Tutor and Case-Based Mode Management Tutor are reviewed. This thesis also reviewed on technology in education, student modeling architecture, on-line learning and reasoning techniques. The system is developed using a rule-based reasoning as a method to represent knowledge. The design phase involves the process of designing the ARITHELP interface including screen interface, navigational tools, interaction styles, required device and feedback format. The development process of the ARITHELP is done using two software application: ToolBook II Instructor and Paintbrush. The major application is done using ToolBook II Instructor whereas paintbrush is used to modify the graphic and picture image before inserting it into the system. The system is implemented as a standalone system and CD-ROM based.