Chapter 4

ABDITS Analysis, Design, and Working of Agents

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ABSTRACT

Agent technology has been suggested by experts to be a promising approach to address the challenges of the modern computer based education. “An autonomous agent is a system situated within and a part of an environment that senses that environment and acts on it, over time, in pursuit of its own agenda and so as to effect what it senses in the future” (Franklin & Graesser, 1996). Any agent, in accordance with this definition, satisfies four properties: autonomy, social ability, reactivity and pro-activeness. By using intelligent agents in an ITS architecture it is possible to obtain an individual tutoring system adapted to the needs and characteristics of every student. In this chapter, the authors are going to present a multiagent system i.e. named ABDITS which is distributed, dynamic, intelligent and adaptive with Pedagogy view for learners in intelligent system. This system is an integration of adaptive web-based learning with expert systems as well. A crucial feature of the ABDITS personal agent is that the case based reasoning approach for student modeling.

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INTRODUCTION

Agent based Distributed ITS is a Web-based, distributed, multi-agent learning system. The system ties the Web users (for students) and therefore the underlying data servers (for courseware and student profiles) in conjunction with the multi-agent resource management. The data and agents are supported by a distributed system consisting of workstations and storage devices connected via high-bandwidth networks. ABDITS is enforced using the current technologies of the net, World Wide Web and software system agents.

Several characteristics specific to asynchronous learning create multi-agent systems enticing. First, the scholars of a virtual category on the net are widely distributed, and therefore the variety of potential participants is massive. This renders static and centralized systems inadequate. A distributed multi-agent system with personalized agents for every student is incredibly enticing. Secondly, the classes are dynamic in nature. The background, knowledge, and ability of active students can modification over time. The training materials and teaching methodologies of the courses can modification too. Thirdly, students have completely different background and temperament.

Teaching methodology ought to be tailored toward every student’s interest and data to create teaching and learning more practical. Moreover, students usually enter in many courses at constant time. Coordination of learning on completely different topics for every student can enrich the training expertise. Finally, students tend to induce along to debate study topics and share common interests. Smooth communications, as well as visualizing and sharing common contexts, have to be compelled to be supported. Hence, multi-agent systems became a promising paradigm in education.

ABDITS consists of variety of specialized agents with completely different experience. In ABDITS, every student is appointed a singular personal agent that manages the student’s personal profile (with the assistance of Profile Agent and Evaluation Agent) as well as data background, learning designs, interests, courses listed in, etc. the personal agent talks to different agents within the system through numerous communication channels. A web course is supported by a set of teaching and course agents. The course agents (with the assistance of Test Agent and Exercise Agent) manage course materials and course-specific teaching techniques for a course. Multiple course agents exist on distributed sites to produce higher potency, flexibility, and handiness. The teaching agents will consult with any course agent of a course and infrequently select one near for higher performance (See below Figure1).
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