SUMMARY

The tremendous advancements in the field of artificial intelligence bring the promise of educational web sites towards a truly interactive intelligent learning environment. It can be used to guide users to a path of higher learning by storing current knowledge as a model. This is even true for other class of websites. Further, would allow conducting “real research demands monitoring, diagnosing & decision making”.

We attempt to develop various intelligent agents, who allows individual to interact with the system by asking some set of questions and start monitoring and diagnosing based on the user’s responses. They also keep track many traits of a human being like knowledge, interest, pattern of answering, lack of awareness and so on. The system has shown enough intelligence to change the way questions should be asked to the individual based on the outcomes.

To achieve stated objectives, several intelligent agents have been identified. They are running in the background with their predefined role to tracks different aspects of student’s performance like learning pattern, behaviour and personal traits. All these information is stored into Knowledgebase of the system. An extensive effort has been conducted to find best ones for these tasks, while keeping in mind goals such as platform independence, modularity and web-based access and scalable agents that support access to heterogeneous information resources as emerging semantic web database and so on. In fact, it can be highly customized and allow the user to know about their strength and weakness and a suggestion to be followed for improvement.

An example for a state of the art Intelligent Tutoring System (ITS), which has been designed by and developed under the guidance of the author, will be given, successfully completed projects based on this environment will be presented to show possible operational areas, and ideas for further developments will be sketched.

Following are the few key agents developed for this research work.

User agents: captures the cognitive state, responsible for diagnosing, intermediate between mega agents and users.
Meta-agents: co-ordinates the activities of other agents, exploring their individual capabilities and ensuring the integrity of their responses.

Service agents: to provide an agent capability brokerage.

Knowledge agents: have capabilities within a subject specialization.

Domain advisor agents: support meta-agents, working as knowledge advisors.

This thesis will explain what can be expected from intelligent tutoring system (ITS) and although especially focused on the technological basis, will examine all kinds of requirements for ITS environments: pedagogical, functional and non-functional requirements. A special chapter will be dedicated to all relevant standards in the field of ITS due to its importance for increasing interoperability, cutting costs and gaining acceptance.