An Agent Based Prototype of Digital Rights Management for Distance Education

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ABSTRACT

Distance Education is a novel system for spreading education beyond the geographical boundary . But to maintain the quality of Distance Education we need a secure and robust Distance Education System. In this paper we propose a secure digital right management system for distance education . Here we use an agent based approach . Each and every user has its own rights to access digital data and that rights are maintained and protected by intelligent agents of our system.

Keywords: *Distance Education, Multi Agent System , Digital Rights Management*

1.Introduction: Education is the only key to solve most of the problems of life. But due to population explosion or geographical boundary or sometimes some personal problem it is very hard for learners to continue their education . For such types of learners distance education is a blessing.

The ultimate objective of Distance Education is to guide the learner in every corner of the country however remote it may be and thereby providing education for all.

But the quality and security of Distance Education must be maintained . That means unauthorized user cannot be allowed to access the content of Databases. We have so many Intellectual Property protection laws. But making laws are not the ultimate solution. We need some technical support as well.

In this paper we try to design such a secure Distance Education System with agent based technique so that no one can enter into the system and alter the content of database . Even authorized user should have some restrictions on their unusual actions.

2.Agent Based Approach : An agent based approach is a new paradigm for software implementation. Agents are programs that take some input from systems as well as from some other agents, and perform actions for the system.

One of the major advantages of agent based system is that we easily upgrade the system by introducing a new agent. In case of Distance Education new experiments are done every time . Agent based systems are good for the domain like Distance Education. In this paper , an attempt has been made to show how agents guide the users about there rights , permissions , do's and don'ts and also give useful messages and suggestions for good working environment and, last but not the least ,help to be aware of system updates.

3.System Architecture : The Proposed agent based model of Digital Right Management in Distance Education is shown in fig1. The main objective of this model is to provide a secure distance education system for students so that the quality of education is maintained.
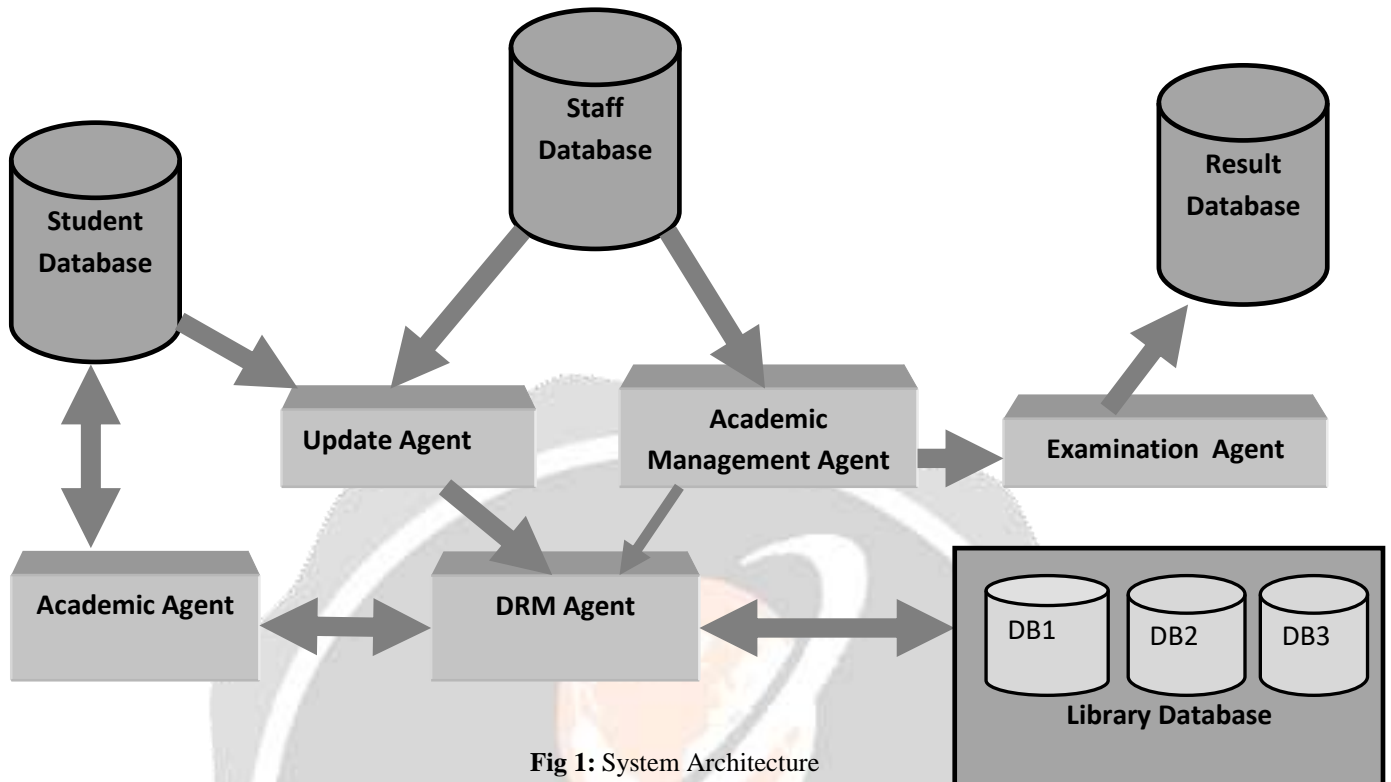
Fig 1: System Architecture

It is clear from the above fig1 that our proposed system has following five agents:

3.1 DRM agent: This is the main Agent (fig 2)of our system . It control the rights of each and every user of the system.

- The DRM Agent restricts students to update digital content.
- The DRM Agent sets the download and upload limits for the students. If the limit exit the student not able to upload or download.
- DRM agent allows Content Writer to update the digital content of Digital Library and uses different technique to digitize data.
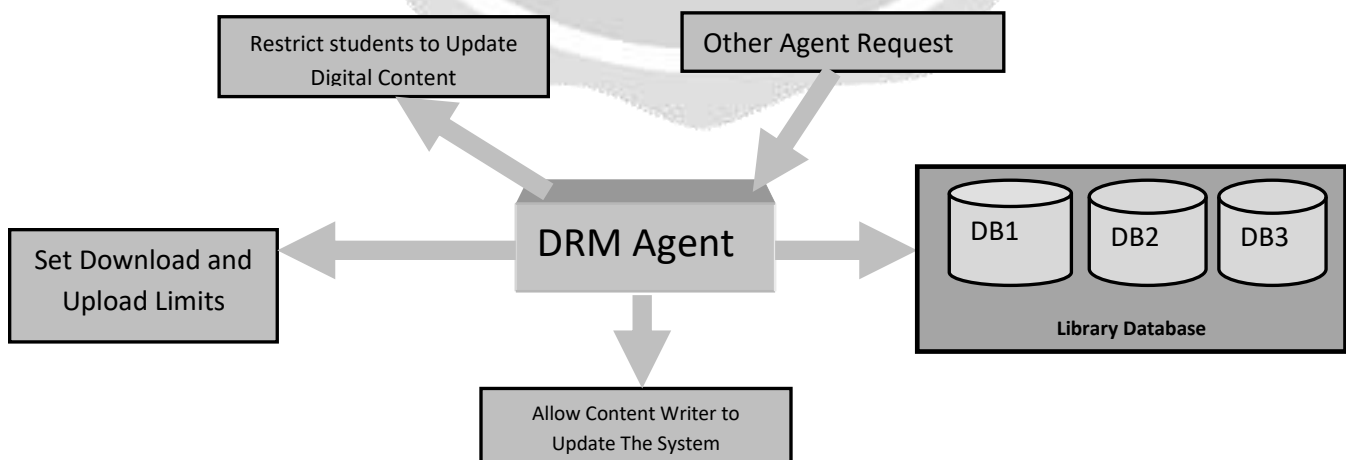- As DRM is the main agent of our system. It receives several data from different agents and users.

Fig2: DRM Agent

3.2 Academic Agent : This agent (fig 3) is useful for academic purpose.

- This agent authenticates students and allow them into the system.
- This agent informs students about their rights in the system .
- The academic agent guides the students about how to search , how to upload assignments as well as how to download.
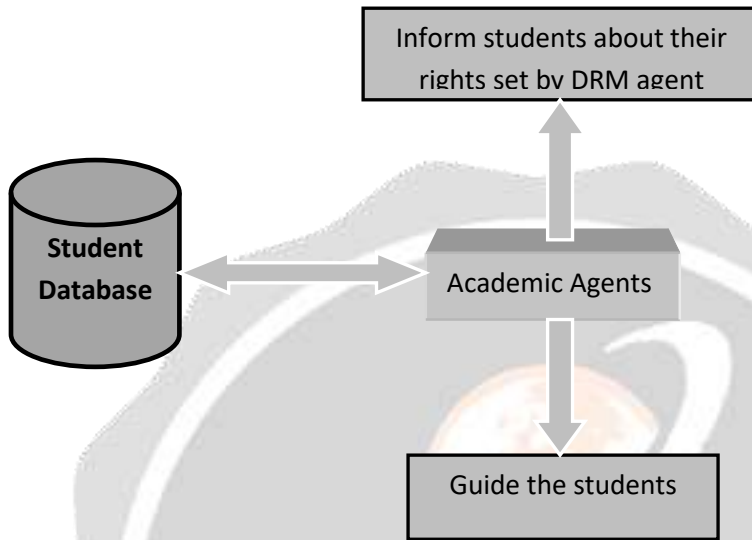

Fig3: Academic Agent

3.3 Academic Management Agent: The academic management Agent (fig 4) controls the entire system.

- The Academic Management agent authenticates content writer into the system to write the digital content for digital library.
- The Academic management Agent prepares video and audio lectures for student.
- The management agent evaluates the assignments .
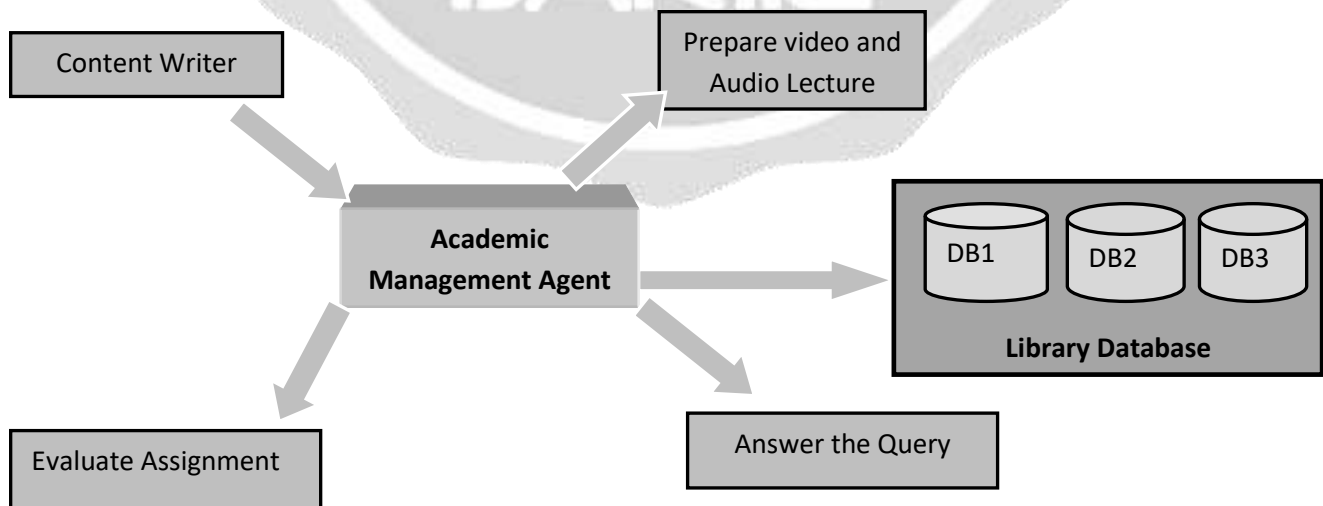- This agent answers the query submitted by student.

Fig4: Academic Management Agent

3.4 Examination Agent: Examination Agent (fig 5)is responsible for Examination process

- Examination Agent receives questions from Academic Management Agent.
- The Examination Agent selects questions for Examination .
- The Examination Agent sends answer to academic management agent for evaluation.
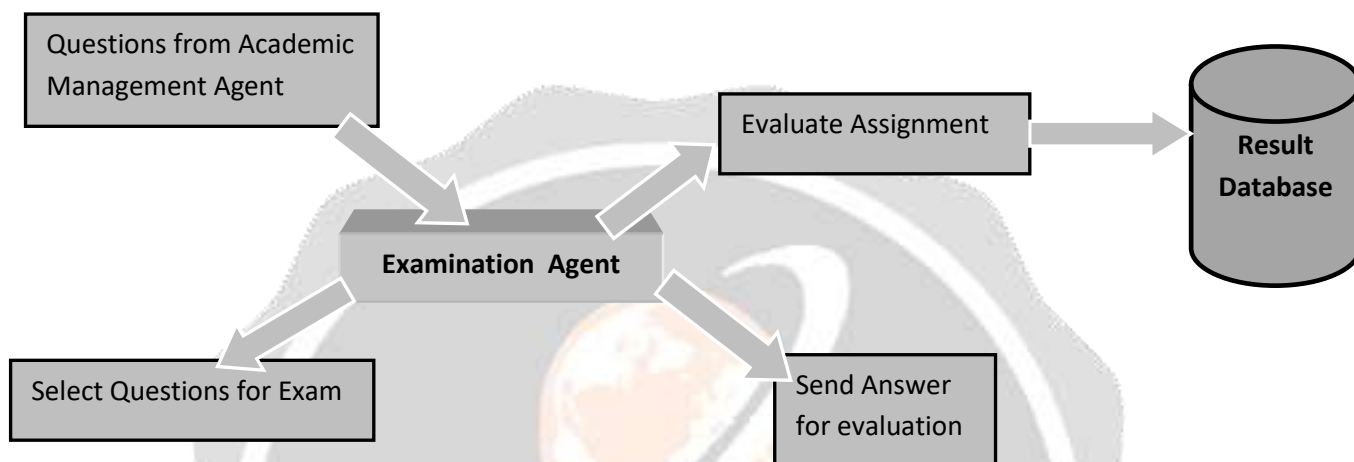- This agent generates result and update result database.

Fig5: Examination Agent

3.5 Update Agent :   Update Agent(fig 6) is responsible for system update.

- An update Agent receives opinion from content writer, course Designer , Teacher as well as students, and after analysis of their inputs sets new DRM rules for different users, if necessary.
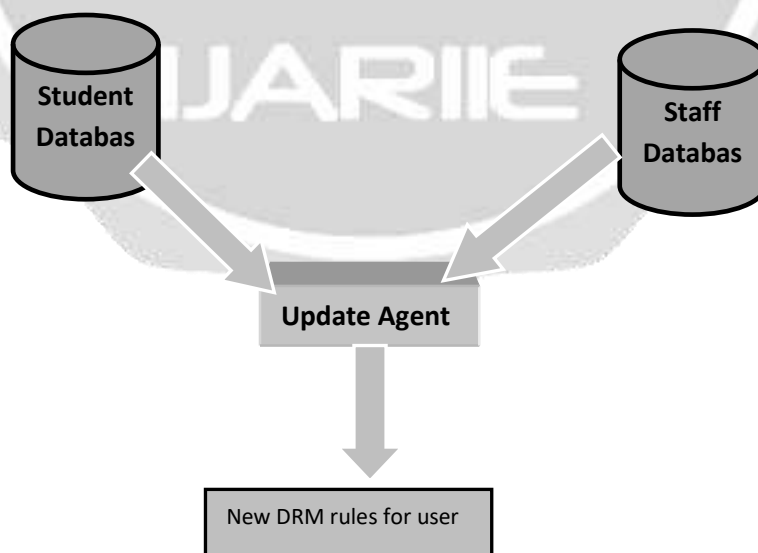

Fig 6: Update Agent

4.Conclusion: In this paper our proposed prototype focused on every component of secure Distance Education System. Different system users are guided by intelligent Agents at each step so that security and access rights are maintained . Though rights of the user may change over time and our system easily updates that changes by introducing new Agents. Agents technology covers many domains like e-commerce , e-learning , healthcare etc . Our Proposed model may also be used in e-learning system with little changes.

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