GUJARAT TECHNOLOGICAL UNIVERSITY

(GTU)

INNOVATION COUNCIL (GIC)

Patent Search & Analysis Report

(PSAR)

Date of Submission : 30/09/2016

Dear **Jasani Darshit Shirishbhai,**

Studied Patent Number for generation of PSAR	:	**16BE7_130020107026_2**

PART 1: PATENT SEARCH DATABASE USED

1. Patent Search Database used	:	Espacenet (EPO Patent database)
Web link of database	:	http://worldwide.espacenet.com/advancedSearch
2. Keywords Used for Search	:	Academic ERP database,database securty using proxy,ERP database security
3. Search String Used	:	Method or System for Securing Academic ERP Database with proxy
4. Number of Results/Hits getting	:	2545

PART 2: BASIC DATA OF PATENTED INVENTION /BIBLIOGRAPHIC DATA

5. Category/ Field of Invention	:	Computer/IT Engineering
6. Invention is Related to/Class of Invention	:	extension of security beyond the traditional role-based data security model
6 (a) : IPC class of the studied patent	:	H04L9/32, G06F17/30
7. Title of Invention	:	Method and System for Securing Academic ERP Database using Datasource Proxy
8. Patent No.	:	US20120047162 A1
9. Application Number	:	US20100860219
9 (a) : Web link of the studied patent	:	https://worldwide.espacenet.com/publicationDetails/biblio?CC=US&NR=2012047162A1&KC=A1&FT=D
10. Date of Filing/Application (DD/MM/YYYY)	:	20/08/2010
11. Priority Date (DD/MM/YYYY)	:	20/08/2010
12. Publication/Journal Number	:	US20120047162A1
13. Publication Date (DD/MM/YYYY)	:	23/02/2012
14. First Filled Country : Albania	:	United States

15. Also Published as

Sr.No	Country Where Filled	Application No./Patent No.
1		

16. Inventor/s Details.

Sr.No	Name of Inventor	Address/City/Country of Inventor
1	Christopher Guglietti	Brookline, MA
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17. Applicant/Assignee Details.

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1	Jenzabar Inc	101 Huntington Avenue, Suite 2200, Boston, MA 02199, United States

18. Applicant for Patent is : Company

PART 3: TECHNICAL PART OF PATENTED INVENTION

19. Limitation of Prior Technology / Art

Academic enterprise resource planning (ERP) systems are used to manage backoffice information at universities, colleges, and other academic institutions. The types of data managed by these systems generally fall into two categories: student information and business information.
The student information in the academic ERP systems is often managed by a number of components. The admissions components of ERP systems are used to manage student admissions, from identifying and recruiting candidates to automating the admissions processes by tracking prospects, importing student data, and analyzing and generating candidate information reports. They are used to manage admissions communications, organize candidate information, schedule recruiting visits and interviews, manage recruitment data, and track students from admissions to registration. Financial aid components of the ERP systems often have the ability to generate financial aid packages and awards, process disbursements and adjustments, process work-study funds, track academic progress, enable authorized administrators to view financial aid data, and facilitate compliance with federal guidelines. Registration components of the systems manage enrollment data and course registration, generate catalogs, determine space availability, course conflicts, course pre-requisites, and non-course pre-requisites. Additional components are often available that cover student life such as student activities, residence assignment, violations and sanctions, advising, and alumni development and advancement activities.
The business information in the academic ERP systems is often managed by a number of other components. Accounts payable components typically provide vendor profiles and generate annual vendor reports, invoices and purchase orders. General ledger components cover automated billing, manage payment plans and manage in-house loans. The components also automate the budgeting process, enable the management of fixed assets, and cover payroll and personnel and other human resource (HR) functions.

20. Specific Problem Solved / Objective of Invention

A secured academic ERP system comprises an ERP database storing data for an academic institution, an application server for authenticating users and generating requests to access the ERP database for the users, a security system that accesses a user permissions table that maps

the users to permitted organizations within an academic institution and modifying the requests to limit the requests to the permitted organizations for the users making the requests, and a data source for receiving the modified requests and passing those requests to the ERP database. This system extends security beyond the traditional role-based data security model to support the finer granularity security at the level of the content. This is achieved without the need for a new database architecture or the use of separate databases for different organizations

21. Brief about Invention

Of the drawings:
FIG. 1 is a block diagram illustrating a hierarchy of organizations within an academic institution and how permissions for users is limited among those organizations according to the present invention;
FIG. 2 is a block diagram showing an academic ERP system and a content level security system for implementing user permissions within the ERP database; and
FIG. 3 is a flow diagram illustrating the operation of the content level security system according to an embodiment of the present invention.
FIG. 1 illustrates the hierarchical organization of an academic institution and the content level security provided by the present system.

In the example, there are three levels of organizational hierarchy. The three organization types are: institute, divisions, and departments. In the typical example, the institute 50 is the academic institution such as a college or university. In the current implementation, there is only one top level organization. Then, there are one or more divisions 52, 54 within the institution 50. The parent organization, top level type is the institute 50, which is identified as Org. ID1 in an organization table 70; when creating a new division, the top level organization will be automatically assigned to the parent organization. Examples of divisions are colleges or schools within the institution.

Each of the divisions (Org. ID 2, 3) 52, 54 has one or more departments. For example, division 52 has three departments (Org. ID 4, 5, 6) 56, 58, 60. Division 54 similarly has three departments (Org. ID 7, 8, 9) 62, 64, 66. The organization type department is the third level organization. The parent organization type will be one of divisions. Examples of departments are departments for foreign languages and English literature in a college of arts and sciences division.

In the current embodiment, the hierarchy of the organization 50 is stored in the organization table 70. The organization table 70 uses a recursive design, so the entire organizational hierarchy of the institution 50 is defined in one table. This means each row has a parent id referencing another row in the same table.

According to the preferred embodiment, different users then have different access to data associated with each of these divisions and departments within the divisions. For example, user1 has access only to data associated with the department (Org. ID 4) 56; and user2 has access only to data associated with department (Org. ID 6) 60. Other users such as user4 has access to the data associated with division (Org. ID 2) 52 inclusive of its three departments; user6 has access to all of the data associated with division (Org. ID 3) 54 including its departments. Finally, some users, user5, have access to all the data of the institution (Org. ID 1) 50.

22. Key learning Points

Key learning points would include the following:

i) security implementation - the methods used in the patents for the security of the database and the data stored inside it are fairly strong and innovative which introduces prospective learners to a whole new side of database security.

ii) database distribution - it plays an equally important part when it comes to the security of the data. if the data is not divided properly, then the specific security of the data becomes useless.

23. Summary of Invention

Many academic institutions, especially larger universities, can have complex organization hierarchies. A single institution may have multiple divisions, such as separate colleges and/or schools. For example a university may have a college of arts and sciences, a college of engineering, and different schools for business, education and nursing, to list a few examples. Graduate schools may also be included such as medicine, law and graduate arts and sciences.

Especially in these larger academic institutions, the traditional role-based data security model may not provide adequate security segmentation among the various organizations, such as divisions and the departments within those divisions. Departmental level administrators should have access to records that are specific to that department or possibly the division, but not the entire institution, on one hand.

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In general, according to one aspect, the invention features a method for securing an academic ERP database. The method comprises intercepting requests to access the ERP database and accessing a user permissions table that maps users to permitted organizations within an academic institution. The requests are modified to limit the requests to the permitted organizations based on the permissions of the users making the requests and the modified requests are passed to the ERP database. Example organizations within the academic institution include divisions and departments within the divisions.

In general according to another aspect, the invention features a secured academic ERP system. The system comprises an ERP database storing data for an academic institution and an application server for authenticating users and generating requests to access the ERP database for the users. A security system accesses a user permissions table that maps the users to permitted organizations within an academic institution and modifies the requests to limit the requests to the permitted organizations for the users making the requests. A data source receives the modified requests and passes those requests to the ERP database.

24. Number of Claims : 25

25. Patent Status : Published Application

26. How much this invention is related with your IDP/UDP?

< 70 %

27. Do you have any idea to do anything around the said invention to improve it? (Give short note in not more than 500 words)

While the patent provides a very strong and a pretty reliable method for securing the database in the ERP, we have to keep in mind that the software world and the technological world is a constantly evolving one. Hence what seems to be technically impenetrable today, might end up being just another common security measure after 10-15 years