

**Digital repository system: A study of School of  
management technology (smt), Abubakar Tafawa Balewa  
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**Abstract**

A digital repository, called Predire, was designed in this study to address the problem of preservation, accessibility and documentation of project reports at School Management Technology (SMT). System analysis and design methodology is used and the system is implemented using PHP, MySQL, HTML, CSS and Ajax.

**Introduction**

The effective organization and utilization of research outputs produced by the students, faculties and research scholars in universities assume greater significance. Several standards, criteria and mechanisms have been used for an efficient and flexible way of creating and managing research output electronically, but many universities admitted the need for an efficient model that will facilitate the establishment of digital repositories.

Digital repositories (DR) are nowadays being appreciated, obviously and generally, as essential groundwork for scholarship in the digital world. They are important for universities in helping to manage and capture intellectual assets as a part of their information strategy.

DR is an archive that aims at the preservation of digital information for access and use by a designated community and satisfies specific requirements<sup>1</sup>. Digital repository is today regarded as an essential groundwork for publication of scholarly output produced by the academia. Therefore digital repository is essentially an online archive where authors and academics can deposit their work, thus making the work freely available in digital form on the Internet<sup>2</sup>.

There are five different types of DR which includes institutional repository, departmental repository, material repository, subject repository, and national repository. Institutional repository (IR) is the concern of this study, which was given different definition by different authors. For example, IR was

viewed as a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution<sup>3</sup>.

The potential of institutional repositories to help foster change within the academy is significant. "Perhaps the most important potential payoff of institutional repositories is opening up entire new forms of scholarly communication that will need to be legitimized and nurtured with guarantees of both short and long-term accessibility"<sup>4</sup>. There are six (6) basic importance of DR<sup>5</sup>:

1. Enables staff and other subscribers to have easy access to scholarly and research material generated by members of the institution;
2. Provides access to a range of materials at other institutions worldwide, where the repository forms part of a global system of interoperable repositories;
3. Provides stable, long-term archiving of information and research output thereby preserving it for the future;
4. Allows for information to be widely and quickly disseminated so that it achieves the highest impact (this can be contrasted with traditional publishing models which are based on restricting, through costly subscriptions, access to information);
5. Increases the academic reputation of your institution by demonstrating the quality and relevance of the research output produced

by members of the institution and by increasing the institution's general visibility, which can translate into tangible benefits such as increased funding from both public and private sources; and

6. Facilitates greater citation of deposited articles, thereby increasing the profile of contributing authors.

Digital repository (DR) is growing at an exponential rate in the European and American higher institutions, but the story is not the same in the third world nations like Nigeria, where most of her higher institutions, for example Abubakar Tafawa Balewa University-Bauchi, are yet to have even one. This causes some problems to emerge in relations to project reports such as lack of documentation, difficulty in accessibility, and occupying large physical space.

This study which developed a DR to address the problems mentioned above, will increase the visibility of SMT project reports and make them freely accessible by the general public. School lecturers will also be able to tackle the problem of research work plagiarism at the school.

#### *Methodology :*

System analysis and design is employed for developing the proposed system. Requirements for the system are developed through observing lecturers' and students' feelings and reactions while trying to locate a desired project report at SMT. Current system investigation is also used to identify shortcomings of the existing system, which include waste of time, energy, lack of documentation and one place for access. It was established that the propose system

should have characteristics of user friendliness, supportability, performance, accuracy and availability.

The user interface of the system is a web-based interface, which produces output in form of web pages and gathers input through web forms. The logical design of the system is developed with some Unified Modelling Language (UML) diagrams (contextual diagram, functional decomposition diagram, use-cases and activity diagram) are used. The system

also employed the use of Relational Database Management System (RDBMS) that uses tables to store data in form of columns and rows. Interaction with the database is in the form of screen based query with the use of script.

The system is divided into three users: administrator, member, and guest. Figure 1 below shows the use case diagram of guest/member subsystem.

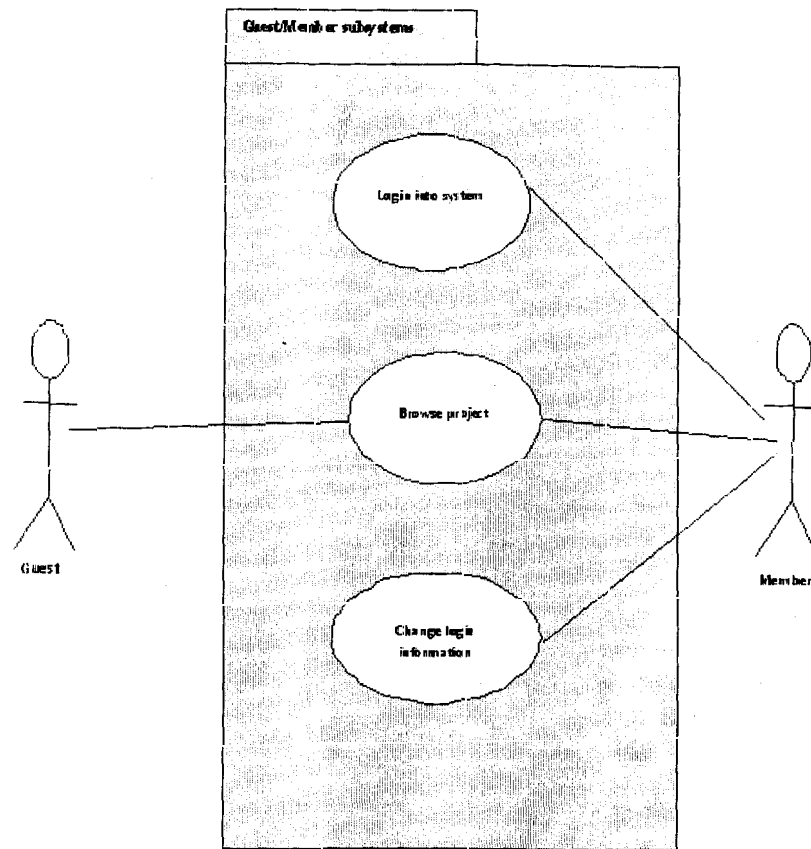


Figure 1. Guest/Member subsystems use-case diagram source: Researcher's illustration  
The administrator subsystem's use case diagram is shown below

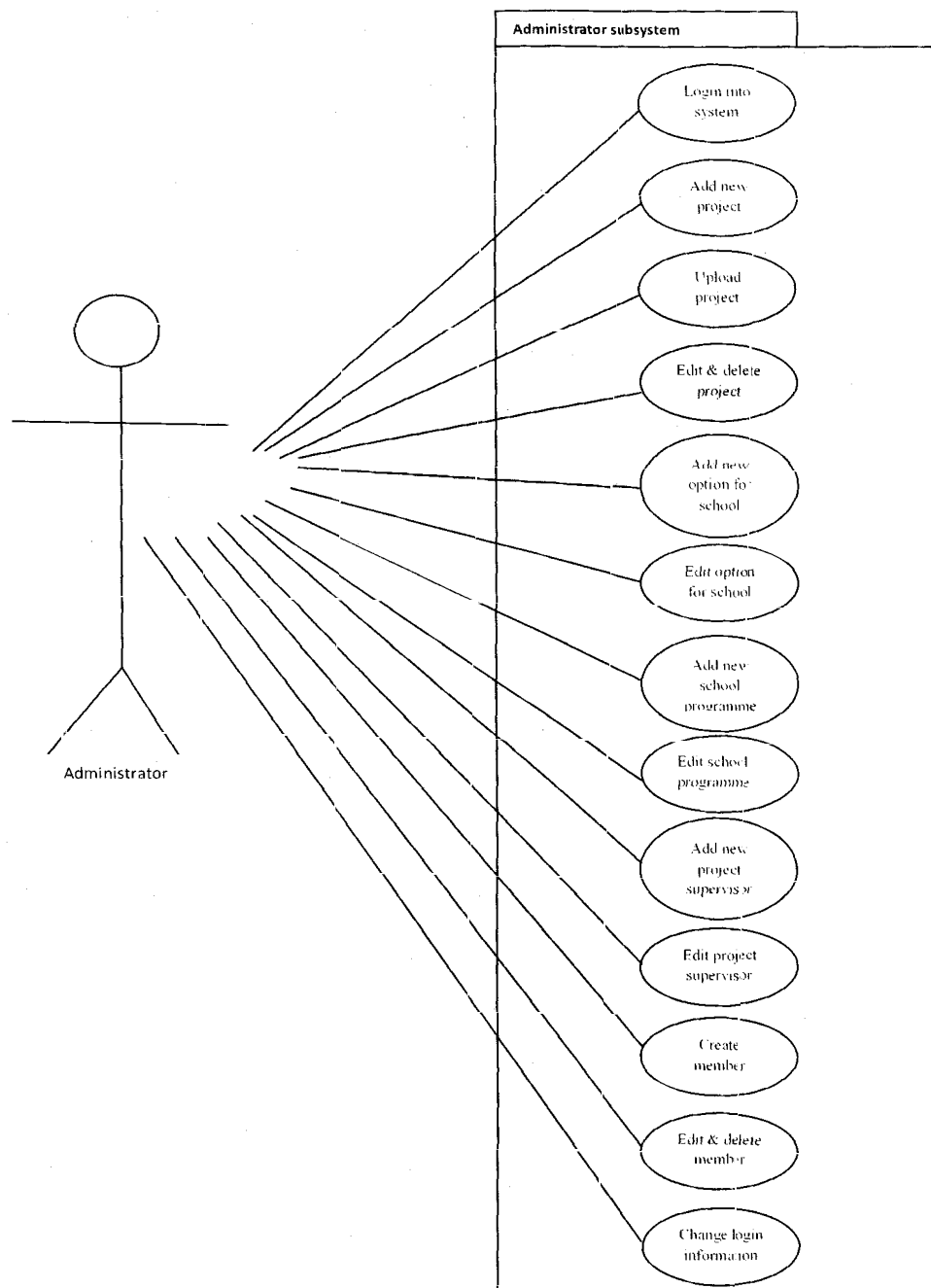


Figure 4. Administrator subsystem use-case diagram source: Researcher's illustration

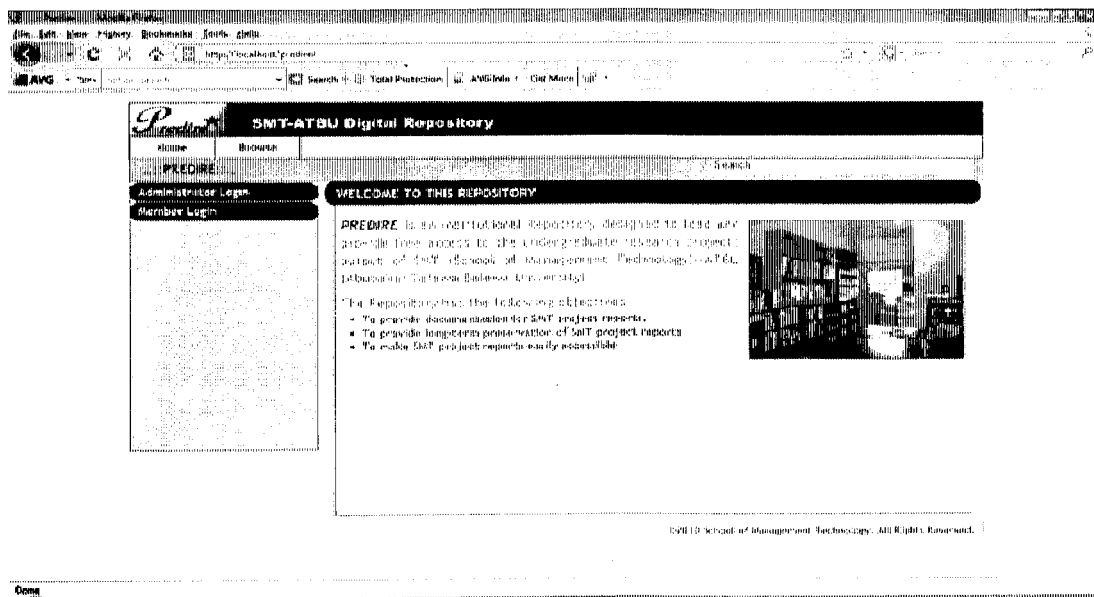


Figure 3. The Home Page of Predire

Source: Researchers' illustration

## Result

Figure 3 below shows the home page of the system developed, called *Predire*. PHP (PHP: Hypertext Preprocessor) – which is a server-side scripting language – and MySQL database, with some XML (eXtensible Markup Language), are used for implementing the back end of *Predire*. While HTML (Hyper Text Markup Language), CSS (Cascading Style Sheets), JavaScript and Ajax (Asynchronous JavaScript and XML) are used for front end implementation.

## Discussion

*Predire* provides a means of digitally archiving and enabling access to SMT project reports. System administrator is responsible for adding, deleting and modifying project reports and makes sure that the system is up and

running. Guests and Members browse project reports abstract. A Member can browse the project full-text. Administrators and Members are required to login into the system.

## Conclusion

*Predire* is user friendly and easy to learn. This implies that a user requires little or no help from experts to use the system, especially if the user can surf the internet. Security features were put in place to maintain confidentiality of data. This implies that users are allowed to see only the data which they are supposed to see. The documentation on the other hand means easy modification of the system.

The development of *Predire* comes at the time when many higher institutions are looking for a way to digitalize their intellectual output produced by the academia. Therefore,

SMT as our faculty will truly benefit from the system when.

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