



Development of an Integrated Tool for Collection, Submission and Tracking of Research Publications in Nigerian (Or African) Universities

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ABSTRACT

Over the years, a great number of research publications have been recorded in Nigeria, including other Africa nations. However, the endeavors of numerous researchers in Nigeria and other West African nations to publish in journals in the industrialized nations, most have not possessed the capacity to meet the exclusive expectations of these journals due to financial constraints, poor infrastructure and training. Most universities in Nigeria experience difficulties in the collection and tracking of research publication. This research work aimed to proffer solution to the problem via the development of integrated tool (a web based system) to aid article collection/submission and tracking for academic research papers. The integrated tool was design using ASPX .NET 2010 and MySQL as the backend. The software consists of four modules: Guest, Author, Editor, Reviewer and Administrator dashboards. Each of this requires creating a password and user identification for first users. A guest can only read and download a published journal/Article but not privileged to publish unless registered as an Author. Author could submit publication that was not previously published as such would be flagged as plagiarisms. An Editor receives author's publications on his dashboard and assigns a previewer accordingly. A reviewer thereafter professionally evaluates the work piece and comments accept/ /reject following the basic resources contained therein. Author effects corrections on accepted publications and upload. The publication is subsequently published after all parameters are met and at due time. This application software was tested and works satisfactorily. It can find application in universities and other research institutions. It is not only capable of solving issues such as complex manuscript management, time-delays in the process of reviewing, and loss of manuscripts that occurs often in off-line paper submission and review processes, but also is capable to build the foundation for e-journal publications. Consequently, an active and rapid scholarly communication medium can be made. The implementation and deployment of this system can improve the rank of the universities and help researchers track published journals and articles irrespective of the sequence.

INTRODUCTION

Recently, the amount of online applications in Nigeria is consistently growing due to introduction of effective internet connection speed from Internet Service Providers. This development has outstandingly impacted numerous institutions to enhance their web services. Subsequently, a development of online journal system is persuading numerous organizations and universities to execute an infrastructure for collecting and issuing electronic journals (e-journals). In the course of the most recent couple of years, e-journals are thought to be noteworthy assets of safeguarding scientific communication between researchers.

Beginning from the late 1970s, the primary development of e-journals starts and proceeded till the mid-1990s. A second time of e-journals advancement started in mid 1990s where the World Wide Web is concocted. In this way, comparably to printed version of journals, publishers started to publish e-journals on the Web (Keller, 2010). A third time of e-journal development started from year 2000 where exceptional advances, for example, searching and filtration features were fused in the e-journals (Tenopir et al., 2008)

According to Kling and Callahan (2011), the circulation kind of e-journals can distinguish the class of e-journal, which is classified into:

- pure e-journals,
- e-printed journals,
- printed-electronic journals, and
- Printed and electronic journals.

The unadulterated e-journals are the journals that have electronic form of disseminations. The e-printed journals are those that have digitals and printed frame distribution, notwithstanding, the circulation of the printed forms have constrained numbers. The printed-electronic journals are those that basically have printed distribution yet in addition made accessible in digital form. What's more, the printed and electronic journals are journals where the printed and digital forms release in parallel (Dilek-Kayaoglu, 2012).

Integrated tool for tracking journals and publications is simply a submission management system (also known as submission processing). It's a scalable and fault tolerant software (web-based or desktop application) that improves and encourages gathering, collecting, tracking and management of electronic submissions. Journal materials and publications can be received, authenticated, tracked, stored, and distributed digitally (Geri and Naor-Elaiza, 2013). Despite the fact that submission management systems can be very sophisticated, however to be grouped under that class, essential features from a submission management system must be given. These features can be summarized as follows:

- The time for gathering and submissions has to be provided;
- A tool for collecting and storage of digital submissions should be accessible;
- The ability to verify the required information for submission;
- Mechanism to access collected data to authorized users;
- Techniques to accept and reject submissions;
- Facilities to give related feedback to submitters;
- Ability to resubmit the submissions;
- Facility for submitters to view their submissions and related comments.

In recent decades there has been a growth in academic publishing in developing countries as they become more advanced in science and technology. Although the large majority of scientific output and academic documents are produced in developed countries, the rate of growth in these countries has stabilized and is much smaller than the growth rate in some of the developing countries. The fastest scientific output growth rate over the last two decades has been in the Middle East and Asia with Iran leading with an 11-fold increase followed by the Republic of Korea, Turkey, Cyprus, China, and Oman. In comparison, the only G8 countries in top 20 ranking with fastest performance improvement are, Italy which stands at tenth and Canada at 13th globally. (MacKenzie, 2010).

APPLICATIONS

The work will be of great benefits to all Nigerian universities as it will make the submission, collection and tracking of research publication easy via the development of the integrated system.

MATERIAL AND METHOD

The integrated tool is for collection and tracking of research publication while providing only references for further reading concerning the research publication background of this topic. The system is easy to maintain, ready to run, scalable, affordable and reliable cost saving tool from Software Associates suited for any university. It's cost and benefits are; Low cost, providing security, Basic computer knowledge required Configurable and extensible application user Interface design. The brain behind this design is the ASP.NET and MySQL.

ASP.NET

ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

ASP.NET's successor is ASP.NET Core. It is a re-implementation of ASP.NET as a modular web framework, together with other frameworks like Entity Framework. The new framework uses the new open-source .NET Compiler Platform (codename "Roslyn") and is cross platform. ASP.NET MVC, ASP.NET Web API, and ASP.NET Web Pages (a platform using only Razor pages) have merged into a unified MVC 6.

ASP.NET aims for performance benefits over other script-based technologies (including Classic ASP) by compiling the server-side code the first time it is used to one or more DLL files on the Web server. These dll files or assemblies contain Microsoft Intermediate Language (MSIL) for running within the common language runtime; this provides a performance boost over pure scripted languages and is similar to the approach used by Python and not dissimilar to Java Server Pages. This compilation happens automatically the first time a page is requested (which means the developer need not perform a separate compilation step for pages).

This feature provides the ease of development offered by scripting languages with the performance benefits of a compiled binary. However, the compilation might cause a noticeable but short delay to the user when the newly edited page is first requested from the Web server, but not again unless the requested page updates further.

The ASPX and other resource files are placed in a virtual host on an Internet Information Services server (or other compatible ASP.NET servers; see other implementations, below). The first time a client requests a page, the .NET Framework parses and compiles the file(s) into a .NET assembly and sends the response; subsequent requests are served from the DLL files. By default, ASP.NET compiles the entire site in batches of 1000 files upon first request.

If the compilation delay is causing problems, the batch size or the compilation strategy may be tweaked.

Developers can also choose to pre-compile their "codebehind" files before deployment, using Microsoft Visual Studio, eliminating the need for just-in-time compilation in a production environment. This also eliminates the need of having the source code on the Web server. It also supports pre-compile text.

MySQL

MySQL is a relational database management system written in C and C++ that runs as a server providing multiuser access to a number of databases. MySQL is used basically to create a relational database structure on a server in order to store data or automate procedure. The following features make MySQL suitable for this research.

- MySQL is platform independent and it can run under a variety of operating systems.
- It contains multiple storage engines that allow the programmer to choose what is most effective for each table in the application.
- MySQL is considered to be a very fast database management system delivering a multiuser and robust QL database server.

ALGORITHM

STEP 1: START

STEP 2: Read in account creation data

STEP 3: Read Log in details

STEP 4: If user equals author then go to Step 5 else, go to step 8

STEP 5: Does the user want to submit an article? If yes, go to step 6 else go to 7

STEP 6: Input article abstract and upload article (in either .pdf or .doc formats).

STEP 7: User checks dashboard to see the status of his published article.

Step 8: If user equals reviewer then go to step 9 else, go to step 10

STEP 9: Reviewers downloads, reads and updates the status of the article assigned to him as approved or rejected.

STEP 10: Admin assigns articles to reviewers according to the discipline of the author who submitted the article.

STEP 11: STOP

SYSTEM DESIGN

The significant goal of this outline is to accomplish another system that is more solid and hearty than the current system as far as research publication collection and tracking is concern. Here the program is design into four modules namely Editors, Reviewers, Authors and Guests modules, administrator the application hosted on the internet where it can be accessed by different users. The software design procedure of the new system after a point by point analysis of the present system is done utilizing a specific methodology. Top down approach has been the best approach in most engineering designers. This includes the breaking down of the project topic itemed as system into subsets called the subsystem.

In the proposed system, the system is divided into various modules and subsystems. These subsystems play out a specific task. Towards the finish of which the entire system is coordinated together in accordance with expressed objectives.

ANALYSIS OF THE NEW SYSTEM

Integrated tool for collection/submission and tracking of publications in its all, is intended to totally proffer solutions to the issues associated with the current traditional offline method of collection/submission and publishing journals in Nigerian Universities. The new system as a web-based application would empower the collection/submission and tracking of research publications in Nigeria universities. The tool is very easy to use and viable. It takes care of the issue of multifaceted nature by building a basic web-based application that can be effectively be utilized and comprehended by users at the Nigeria universities. The proposed system is intended to appear as the current system; the main change is in the stage that is from a manual one to an online platform that is using a web-based technology for the collection/submission and tracking of research publications. The reason is that new systems are better worked around a current system, so the administration can abstain from investing part of energy in manually collecting/submitting and tracking of research publications. The bedrock of this system is it utilizes web-based technology, and an all-around organized database, this database is intended for each table to go about as different research publications record keeping. The excellence about the new system is that, any information that should be entered with the database naturally shares assets with the information entered.

DESIGN OF THE NEW SYSTEM

System design is the activity continuing from a recognized arrangement of necessities for a system to a plan that meets these prerequisites. System design process includes the change of a thought into a nitty gritty usage with the point of fulfilling clients require. A refinement is in some cases drawn between High-level or compositional outline; which is worried about the primary parts of the systems and their parts and interrelationships and itemized plan which is worried about the inward structure and activity of individual segments. The term system design is now and then used to cover only the abnormal state plan action. Its best communicated as an activity from the particular of a system to the depiction of the system. In this project work, an examination of the elements of the current system for participation was explored. Data about the current system was accumulated using individual meetings and archive survey from the administration. The data was examined and translated with a specific end goal to make determinations and infer a "casual depiction" of the system being considered. One noteworthy favorable position of this casual system is that it features the shortcomings and qualities of the system being considered and gives a beginning stage to the ensuing plan stage. The system examination process was separated into two noteworthy exercises:

1. Data gathering/Systems examination, and
2. Data analysis/Documentation of findings.

DATA GATHERING/SYSTEM EXAMINATION

For the current system to be comprehended, certainties about that system must be arranged. The correct sources of info, activities/procedures and outputs of the system must be resolved. Such data is normally assembled by leading top to bottom meetings with clients of the systems, dispersing casual polls to get client's sentiments and perspectives on issues identifying with the system, perceptions of the current system amid tasks, or by examining reports more often than not produced over the span of activity of the system.

DATA ANALYSIS/DOCUMENTATION OF FINDINGS

After exploring a system to discover realities about the collection/submission and tracking of research publication system usefulness, this data is broken down or translated and the outcome is an informal depiction of the system being considered. This casual depiction will frame the reason for the outline of another system. It is in this manner basic that the investigation of the accumulated data was completed carefully.

INPUT DESIGN

The program designed involved some input forms in order to achieve or derived some required outputs. These forms relate to new system information.

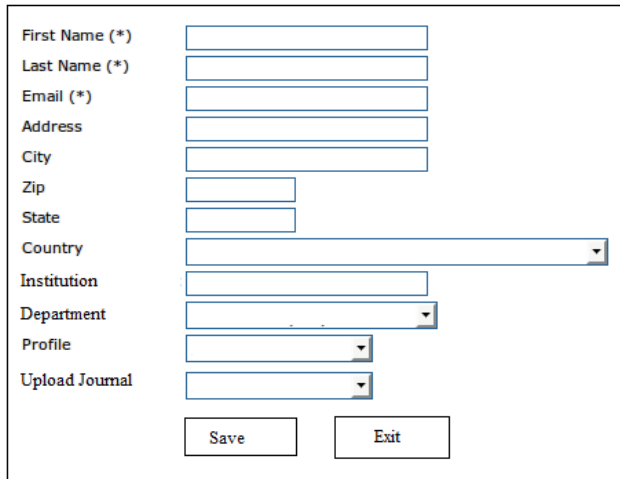
Input design is the process of converting user-oriented input to a computer based format. Input design is a part of overall system design, which requires very careful attention. Often the collection of input data is the most expensive part of the system. The main objectives of the input design are

- Produce cost effective method of input
- Achieve highest possible level of accuracy
- Ensure that the input is acceptable to and understood by users.

The goal of designing input data is to make enter easy, logical and free from errors as possible. The entering data entry operators need to know the allocated space for each field; field sequence and which must match with that in the source document. The format in which the data fields are entered should be given in the input form. Here data entry is online; it makes use of processor that accepts commands and data from the operator through a key board. The input required is analyzed by the processor. It is then accepted or rejected. Input stages include the following processes; Data Recording, Data Transcription, Data Conversion, Data Verification, Data Control, Data Transmission, Data Correction.

One of the aims of the system analyst must be to select data entering method, which reduce the number of stages so as to reduce both the changes of errors and the cost. Input types, can be characterized as External, Internal, Operational, Computerized and Interactive

Input files can exist in document form before being input to the computer. Input design is rather complex since it involves procedures for capturing data as well as inputting it to the computer.



The figure shows a web form for user registration or profile management. It contains the following fields and controls:

- First Name (*): Text input field
- Last Name (*): Text input field
- Email (*): Text input field
- Address: Text input field
- City: Text input field
- Zip: Text input field
- State: Text input field
- Country: Dropdown menu
- Institution: Text input field
- Department: Dropdown menu
- Profile: Dropdown menu
- Upload Journal: Dropdown menu
- Save: Button
- Exit: Button

Figure 1: Input Design

OUTPUT DESIGN

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of this result for latter consultation. Computer output is the most important and direct source of information to the users. Designing computer output should proceed in an organized well throughout the manner. The right output must be available for the people who find the system easy to use. The outputs have been defined during the logical design stage. If not, they should be defined at the beginning of the output designing terms of types of output connect, format, response etc. Various types of outputs are External outputs, internal outputs, Operational outputs, Interactive outputs and turn around outputs. All screens are informative and interactive in such a way that the user can full fill his requirements through asking queries. The system is designed in such a way that it efficiently provides output to the user promptly and in a well-organized manner. The format for the several output is make available on the output web pages. Output from the system is in form of documents. Majority of the outputs carries information relating to ATM, the outputs are presented in a text/image format and some of the information derived from the database.

DATABASE DESIGN

In principle, there are only a few things that can be done with a database one can: view the data, find some data of interest, modify the data, add some data and delete some data. To achieve these, three major factors need to be considered in any database system, Creating the structure of the database; Entering data and Retrieving data.

Designing a database system for the proposed collection/submission and tracking of research publication system is far from being a trivial operation. Much analysis of the particular application is necessary to determine what data are required and how they must be linked. When this analysis has been done, an appropriate database model can be chosen. This is achieved by a prompt-driven program modules that simplify the creation of a complete relational database system for the proposed system:

- A table definition module creates a complex network of linked files that will hold the data;

- A forms module creates sophisticated windows in the database that enables users to add, update, and delete data from files;
- A report module organizes data into reports that enable the user to view data in a variety of ways and
- An application builder module allows a user to select options from menus that will build a complete database system.

After system investigation and analysis, the concept of the new system was designed and all the relevant entities involved in the system were identified. Therefore, the following entities were chosen to capture this information.

A Data dictionary is a collection of descriptions of the data objects or items in a data model for the benefit of programmers and others who need to refer to them. A first step in analyzing a system of objects with which users interact is to identify each object and its relationship to other objects. In a relational database, the metadata in the data dictionary includes the following;

- Names of all table in the database and the owners
- Names of all indexes and the column to which the tables in those indexes relate
- Constraints defined on tables, including primary keys, foreign keys relationships to other tables, and not-null constrains.

Database design describes the design structure of the system database. The system has an updatable database. The database consists of tables that offer relational attributes with both primary and foreign keys. The database was created with the sql statement “create database”. The database name is research publication and consists of the tables shown below

Table 1: Authors

Column	Type	Null	Default
SN	int(11)	No	
Institution	text	Yes	NULL
User_name	text	Yes	NULL
FullName	text	Yes	NULL
States	text	Yes	NULL
Status	text	Yes	NULL
Address	text	Yes	NULL
Abstract	text	Yes	NULL
Article	longblob	Yes	NULL
Phone_No	text	Yes	NULL
Article_Name	text	Yes	NULL
Article_Type	text	Yes	NULL
Email	text	Yes	NULL
Discipline	text	Yes	NULL

Table 2: Discipline

Column	Type	Null	Default
<i>department_id</i>	int(11)	No	
Discipline	text	Yes	NULL
Faculty	text	Yes	NULL
faculty_id	int(4)	Yes	NULL

Table 3: Log history

Column	Type	Null	Default
user_name	varchar(50)	Yes	NULL
server_date_time	timestamp	Yes	CURRENT_TIMESTAMP
serial_number	bigint(20)	No	
computer_logged_from	varchar(200)	No	
ip_address	varchar(200)	No	
user_activity	text	Yes	NULL

Table 4: Reviewers

Column	Type	Null	Default
<i>SN</i>	int(11)	No	
Institution	Text	Yes	NULL
Guid	varchar(50)	Yes	NULL
User_name	Text	Yes	NULL
FullName	Text	Yes	NULL
States	Text	Yes	NULL
Status	Text	Yes	NULL
Address	Text	Yes	NULL
Abstract	Text	Yes	NULL
Article	Longblob	Yes	NULL
Phone_No	Text	Yes	NULL
Article_Name	Text	Yes	NULL
Article_Type	Text	Yes	NULL
Email	Text	Yes	NULL
server_date_time	Timestamp	Yes	CURRENT_TIMESTAMP
Discipline	Text	Yes	NULL

Table 5: Software users

Column	Type	Null	Default
user_name	varchar(50)	Yes	NULL
Guid	varchar(50)	Yes	NULL
Fullname	varchar(50)	Yes	NULL
States	varchar(50)	Yes	NULL
Address	Text	Yes	NULL
Institution	Text	Yes	NULL
created_by	varchar(50)	Yes	NULL
Surname	varchar(50)	Yes	NULL
first_name	varchar(50)	Yes	NULL
other_names	varchar(50)	Yes	NULL
Discipline	varchar(50)	Yes	NULL
phone_no	varchar(50)	Yes	NULL
Email	Text	Yes	NULL
Password	varchar(50)	Yes	NULL
Privilege	varchar(50)	Yes	NULL
date_time_created_updated	timestamp	Yes	CURRENT_TIMESTAMP
<i>serial_number</i>	int(11)	No	

FUNCTIONALITY OF THE SYSTEM

A case diagram graphically depicts the interactions between the system, the external system and the user. Use case diagrams play a major role in system design because it acts as a roadmap in constructing the structure of the system; it also defines who will use the system and in what way the user expects to interact with the system.

MODULES

AUTHOR MODULE

STEP 1: A new visitor creates an account.

STEP 2: The user logs in with his Author's login details.

STEP 3: The user submits an abstract of the article

in the abstract field and uploading the article (which is in either .pdf or .doc formats).

STEP 4: User checks dashboard to see the status of his published article.

REVIEWER MODULE

STEP 1: A new visitor creates an account.

STEP 2: The user logs in with his Reviewer's login details.

STEP 3: The reviewer checks the dashboard to see articles assigned to him

STEP 4: The reviewer downloads the article to read it.

STEP 5: Reviewers updates the status of the article he has just read as approved or rejected.

ADMIN MODULE

STEP 1: Admin logs in with his admin login details.

STEP 2: Admin sees various articles according to the discipline on his dashboard submitted by authors. He also sees all the registered reviewers and their disciplines.

STEP 3: Admin assigns articles to reviewers according to the discipline of the author who submitted the article.

The Use Case diagram for collection/submission and tracking of research publication system is shown in the figure below.

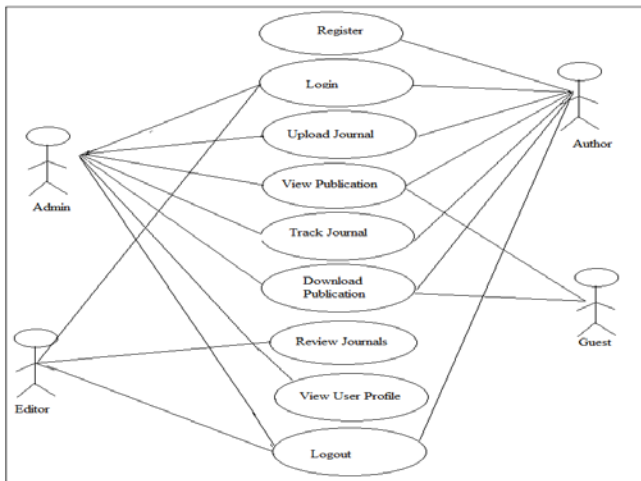


Figure 2: Use case diagram for the proposed system

SEQUENCE DIAGRAM

Sequence diagram of the collection/submission and tracking of research publications system shows how process operates with one another and in what order. It is a construction of a message sequence chart. This diagram shows object interaction arraigned in time sequence and the sequence of message exchanged between the object needed to carry out the functionality of the scenario.

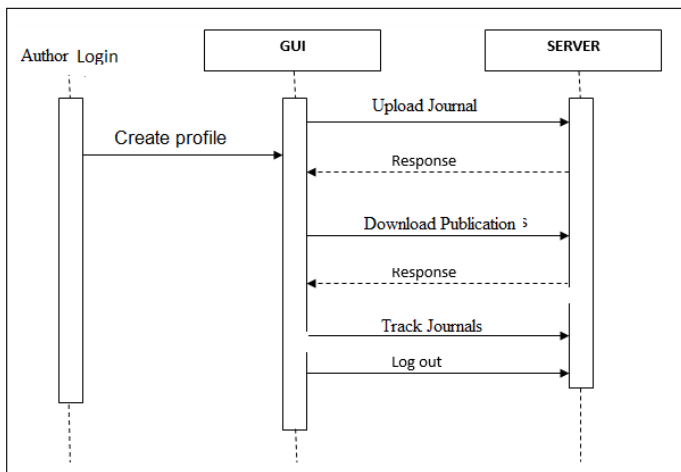


Figure 3: Sequence diagram of the proposed system

SYSTEM IMPLEMENTATION AND MAINTENANCE

CIRCUIT CONSTRUCTION

The characteristics of good system documentation are considered such as what form the documentation should take. The requirements of system documentation are considered and an attempt is made to define what system documentation should do that is, what its purpose is. It will also present information about system implementation which has to do with testing of the new system for functionality

PROGRAMMING LANGUAGE

The new system was implemented using ASP.NET programming language. This is because the programming language has the following advantages:

- Keeps Asp.net applications secured with the built-in Windows authentication and per-application configuration.
- Asp.Net has reduced the long lines of code required to develop large applications.
- Asp.Net and Html, together generate dynamic web pages smoothly.
- Being an ideal server-side scripting technology, Asp.Net code first runs on Windows server before displaying on the web browser.
- Asp.Net framework is language independent, means you can choose any programming language which best suited to your application.
- With the built-in configuration information, Asp.Net is easy to deploy.
- The windows web server thoroughly monitors the web pages, multiple components, and applications running over it.
- The Dot Net Framework quickly gives an alert for memory leaks, unbounded loops, and other wrong behaviors, immediately killing them and restart them over again.
- Asp.Net features like early binding, JIT compilation, caching services and native optimization supports gives your application the high level of performance.
- All the Asp.Net applications are highly monitored and managed to help application available to handle requests.
- The best part of Dot Net Framework is it has its own built-in caching features.
- The content and the program logic are separated in the .Net Framework, thus reducing the program inconveniences.

Microsoft Asp.Net Framework is a widely used development framework for building enterprise level web applications, that today's developers love to use. The Dot Net technology offers immeasurable benefits for various issues like memory management, security, and exceptional handling, a developer may face. The above-mentioned advantages made Asp.Net Framework an ideal choice for developing Net Application Development.

MYSQL is a relational database management system written in C and C++, that runs as a server providing multiuser access to a number of databases. MYSQL is used basically to create a relational database structure on a server in order to store data or automate procedure. The following features make MYSQL suitable for this research.

- MySQL is platform independent and it can run under a variety of operating systems.
- It contains multiple storage engines that allow the programmer to choose what is most Effective for each table in the application.
- MySQL is considered to be a very fast database management system delivering a multiuser and robust QL database server.

SOFTWARE REQUIREMENT

For the effective implementation of the new system, the following software has to be installed on the computer system.

- i. Windows 7, 8, 8.1 and 10 Operating System
- ii. MySQL
- iii. Web Browser (Chrome, Firefox etc.)

HARDWARE REQUIREMENT

Hardware means the physical components of the system that you can touch and feel. The hardware requirement means facilities needed by the computer for design and implementation of this expert system. The computer recommended for diagnosis system should consist of a minimum of the following components:

- (a)Main processor - - - - - dual core (2.0 GHz)
- Hard Disk - - - - - 250GB
- Keyboard - - - - - enhanced
- monitor - - - - - video graphic adapter (vga)

IMPLEMENTATION GUIDELINE

For the computerized collection/submission and tracking of research publication system to have the optimal use of its implementation, some necessary steps have to be taken for its completion stage. They include: User training requirement and the Master file conversion

USER TRAINING REQUIREMENT

With the introduction of a new system, there will be training organized for those users of the system even though they have knowledge of how to make use of a computer system. The training will enable the users to make use both hardware and software effectively. Before the training can begin, after programming is completed the following will have to be provided:

- More Computers.
- An active local area network must be confirmed to be present and working perfectly.
- An internet connection.
- A server system where the database would be stored and also where the program would be running on.
- All the computers must be tested to establish a connection with the server system (where the database is located).

MASTER FILE CONVERSION

File conversion is the conversion of computer data from one format to another. This involves the transformation or conversion from paper materials into digital form. The following steps would be taken in the file conversion;

- Since the system was previously manual all required data would be entered into the system and would be verified for accuracy. There will be pre-coding of input data from source document.
- The data would be investigated to remove inaccuracies, inconsistencies and any error attached to it.

PROGRAM INTERFACE

These form the major function that the collection/submission and tracking of research publication system does. Each interface has a specific task that it carries out making the system users work easy, interesting and less stressful.

USER INTERFACE IMPLEMENTATION/LOGIN FORM

The user interface implementation is where the user interacts with the system by registering with the system and by inputting his or her username and password in other to gain access to the main menu.

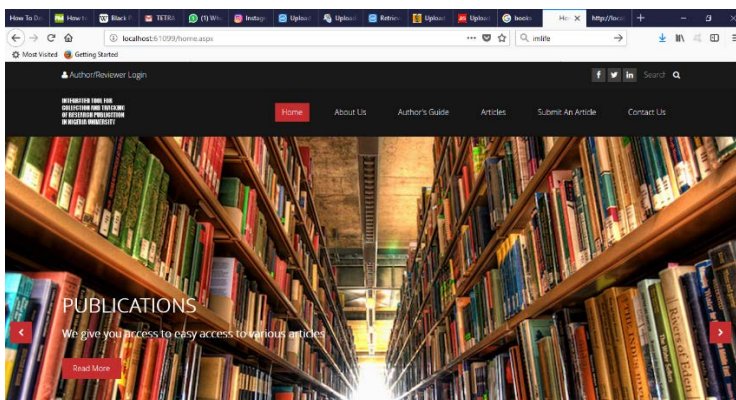


Figure 4: Homepage

The figure above shows the landing page when the program is launched. From the homepage users will be able to access the features of the system.

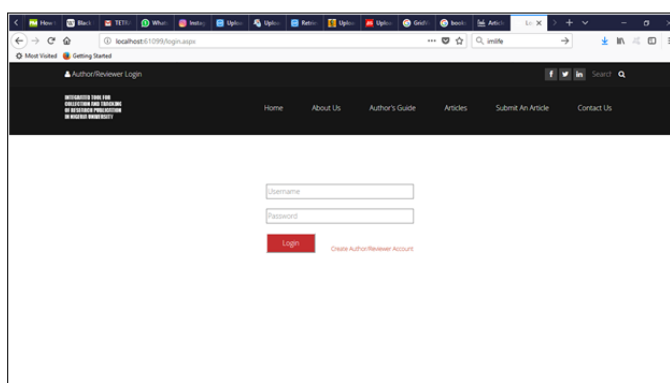


Figure 5: Login form

The user interface implementation displayed above enable the user to interact with the system in other to gain access to the main menu of the system.

REGISTRATION INTERFACE IMPLEMENTATION

The registration input interface implemetation allows the login access the system.

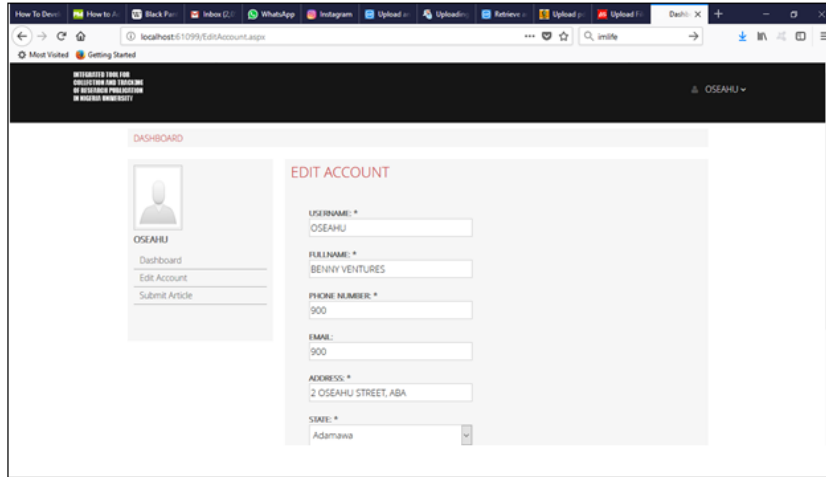


Figure 6: Registration Input interface

MAIN MENU INTERFACE IMPLEMENTATION

The main menu implementation is the interface that will be displayed after a user enters the correct username and password or passes through the user interface.

The main menu implementation displayed above is the user main menu immediately the user passes through the user interface.

SYSTEM TESTING

This is the process of performing variety of tests on a system to explore functionality or identify problems. System Testing is actually required before and after the system is put into place. Testing process identifies program defects or weakness. This testing was to ensure that the system meets organizational and end user requirements. The coding of this project was put through series of test ranging from unit testing, integration testing, system testing and user acceptance testing.

TEST RESULT

This is the result obtained after testing the system with the test plan and test data. During the testing, the actual and expected results were compared to ensure they produced same result or if there is a difference, it should be slight and negligible. Hence the result:

Table 6: Comparison between expected and actual results

TEST CONDUCTED	EXPECTED RESULT	ACTUAL RESULT
Author enters username and password	Author should be able to access the main menu if the correct user name and password is entered properly.	Author that enters the correct username and password was granted access to the main menu

Author click on Upload Article	Author enters Article Information to proceed with the upload.	Author was able to enter Article Information and proceed with the upload.
Author clicks on track Article	A form will be displayed to the user, the form enables the author track article	Author was able to track of status of published article.

SYSTEM MAINTENANCE

The developer of the software or system should be able to carry out maintenance on the system using several utility programs. Again, if the developer was hired to developed the system, selected staff should be trained by the developer of the system on how to carry out routine maintenance on the new system regularly.

CONCLUSION

Online publication submission is much faster than the traditional, problematic methods of publication and tracking. It offers journals in African and other developing countries the opportunity to take a place in the global publishing community. In the future, all or most journals will be published online because it is the best and fastest way to communicate research findings and subsequently to create new knowledge. The system developed takes its uniqueness in Nigeria and the entire universities for the submission management system principals. The interface of the system constructed based on responsive design features. Lightweight panels are employed in the system to support low bandwidth connections and it is protected against all types of web attack. In this work, the proposed integrated tool for collection and tracking of research publication in Nigerian universities was developed to solve the problem of duplication of research publication, financial constraints, and tracking challenges of the current traditional submission in use in Nigeria universities today. With the aid of the integrated tool, difficulties in the collection and tracking of research publication are minimized. This system is not only capable of solving issues such as complex manuscript management, time-delays in the process of reviewing, and loss of manuscripts that occurs often in off-line paper submission and review processes, but also is capable to build the foundation for e-journal publications. Consequently, an active and rapid scholarly communication medium can be made. The implementation and deployment of this system can improve the rank of the universities. The integrated tool was developed using ASPX.NET 2010 and MySQL as the backend.

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