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A Scalable Mobile Information Access And Service Request System (A Case Study of Afe Babalola University, Ado-Ekiti (ABUAD)

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ABSTRACT

This study identified the need for a seamless mobile information access system for the University to address the perennial jostles incidental to information access by students. To gain more insights into the problem, the study embarked on an interactive sessions and a survey with a random selection of students encountered. And from the requisite information elicited from them, and also based on the personal experiences of one of the authors as well as facts gleaned from the literature, a requirement specification for a mobile information access system was drawn up. This was subsequently translated into a system design using object oriented design methodologies. The resulting design was coded into a functioning mobile information access system whose features and functionalities were tested in the productive environment. The results showed that the desired features and functionalities of the deployed system met the systems requirements for a productive seamless information access system.

Keyword: Mobile Information Access, Mobile Phones, Mobile Device Operating Systems, Mobile Application, Mobile Web.

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1. INTRODUCTION

Mobile information access involves retrieving information from remote repositories on the go, and sometimes, the requested information may not be available from a single repository but may have to be obtained by combining information from multiple repositories. With the increasing need to access information promptly in all spheres of human endeavors, there is the need to continuously elicit new requirements, and then develop mobile solutions that meets these requirements. The increasing versatility of mobile technology coupled with its growing range of benefits continues to boost the demand for mobile applications that are needed to boost productivity across the economy as a whole. In the area of information access, the use of mobile devices has become the fad, prompting the development of different applications to meet unique or specific requirements. It is against this backdrop that this study was embarked upon to meet the unique requirements of instant and seamless information access needs of a rapidly growing tertiary institution like Afe Babalola University Ado-Ekiti (ABUAD).

This study was informed by a long term empirical observation and personal interaction with students by one of the authors of this article who is a functionary of the University Integrated Resources Center (IRS), the Information Technology (IT) hub of the institution. Overtime, it was observed that students were always in a perpetual jostle to access basic information such as results, lecture and examination timetable, lecture venues, course lecturers, upcoming events, semester calendar, campus shuttle services, emergency services and urgent repair services, etc. Typically, this jostle results in students clustering around the various spots where this basic information are to be accessed or sought, or where these basic emergency or urgent repair request for services are to be made. The outcome of all these clustering was always chaotic.

And to minimize this chaos, the students devised a smart strategy of a few of them using their mobile phones cameras to obtain quick snapshot of some of such information, which they redistribute amongst themselves using their mobile phones applications suitable for the purpose. While this smart strategy is effective for getting some forms of information, it does not work for some others. For example, not all forms of information can be gleaned from pasted notices, and even if they are uploaded to the University website, experience has shown that most students find it hard to navigate the website to reach such information. Also, some forms of requests like emergencies or urgent repairs still warrants the students going to the units responsible for the services to complain. And most times, one finds a reasonable crowd of students with some canvassing for priority attention owing to their perceived severity of their cases.

To obtain more insight into this state of affairs, an interaction with some randomly encountered students at some of these busy units and other spots was undertaken. In the course of this interaction, opened discussions were had, to have a glimpse of the student's perspectives on how the challenges can be ameliorated. And to streamline the discussions, some sample questions, some of which were later formulated into a 5 Likert scale questionnaires and administered to the students, were fielded.
Based on the student's responses coupled with firsthand experience gained from the frontline (by virtue of one of the authors being a member of the University IRS center), and some fundamental facts gleaned from the literature, the study conceived, developed and empirically tested a mobile solution to the problem of information access and services request in the University.

2. RELATED LITERATURE

The term ***access*** is frequently used in relation to different bits and pieces of information service including new telecommunications technologies that permit remote access. For ease of understanding, it is assumed that all of the provision and use of retrieval-based information services is concerned with access to information. And putting all this necessary bits together, Buckland (1991) technically defined "access" as the means to enable an inquirer to learn from a source pertinent to an inquiry, to accede to the evidence that result in acquiring the knowledge desired. Buckland (1991) believes that the variety of ways in which the term **access** has been used was symptomatic of the complexity of retrieval-based information services. He identified six types of barrier to be overcome if access to information was to be achieved.

These barriers are:

- **Identification**. A suitable source needs to be identified.
- **Availability**. The inquirer needs to be able to inspect the source or a copy of it.
- **Price to the User**. Price denote what the would-be user must expend to use the service. The price may include, but is not restricted to, money. The "real price" includes time, effort, and discomfort as well as money. In particular, price includes the effort of learning to use difficult, user-unfriendly systems.
- **Cost to the Provider**. In this context the term cost denote what has to be expended by the providers of service. To the extent that the sponsors or providers of service may incur expenditure of effort, money, space, or inconvenience.
- **Cognitive Access**: Once physical access to a suitable source has been achieved, another condition for successful access is that the inquirer has sufficient expertise to understand it. If not, then some combination of two remedies of explanation and education has to apply.
- **Acceptability**. Acceptability denotes two related issues: First, inquirers may be reluctant to accept a particular source as credible, regarding it with suspicion as having inadequate "cognitive authority". Second, the inquirer may be unwilling to accept the evidence of the source because it is unwelcome in what it signifies and conflicts with other beliefs, a matter of cognitive dissonance.

This study observed that this Buckland perception of access and information access is authoritative because several current studies agreed with it and even referred to it extensively. Also, the articulation of the barriers to be overcome to achieve access to information translates into a good requirement specification and a detailed proposal to achieving information access objectives.
However, Mobile Information Access (MIA) as used in this study relates to the use of mobile devices, especially smart phones for accessing information on the Internet.

This view of MIA is in accord with the view of Oliver (1995) and the authoritative perspective of Satyanarayanan (1996) who defined it as the ability to access information on demand when mobile. In a report titled "mobile information access", Satyanarayanan noted that the ability to access information on demand when mobile will be a critical capability in the 21st century. Explaining further, the report recorded that the ability to access information on demand at any location will confer competitive advantage in an increasingly mobile world. And as users become more dependent on this ability, the span of access of data repositories will have to grow. This report did not only document the vision for mobile information access, but went further to describe the logical and the functional requirements of the platforms that will support such a system. The report added that data from shared file systems, relational databases, object-oriented databases and other repositories must be accessible to programs running on mobile computers. True to this prediction, a couple of years down the line, persistent progress in a wide range of mobile technologies, from networking protocols to smart devices has ushered in a new age of mobile information access. Mobile devices have become the preferred choice of devices for accessing information resources and services, and consequently, computing technologies and information services have become more mobile and ubiquitous.

Studies on information access patterns, preferred devices for information access and the development of custom mobile applications to facilitate information access have been undertaken in different spheres of human endeavors (Zhou et al., 2010; Chua et al., 2011; Church and Oliver, 2011; Banu et al., 2011; Zickuhr, 2011; Yeh, 2014; Pan and Wang, 2016). And one argument to buttress this development may not be far from that of Zhou et al. (2010) who rightly observed that mobile devices have continued to proliferate and have become more tightly integrated with our daily activities. Zhou et al. conducted a number of studies and from some insights garnered, they were able to draw up a suitable requirement specification for a prototype mobile application development that best suits their university needs.

On their own part, Pan and Wang (2016) investigated information access patterns on desktops, tablets, and phones using web log analysis. Their results showed that the three types of devices had different ratios of search traffic, referral traffic, and direct traffic. The results of their content analysis further showed that more specific information was requested on mobile devices while general information was requested more on desktop computers. The results also indicated that urgent or emergency related information needs were requested on mobile devices. Their study highlighted the importance of investigating the contexts in which the mobile devices are used to access information. The need to develop and integrate mobile access capabilities into existing information systems was demonstrated by Ebner et al. (2008) who described the implementation and integration of an m-Learning interface into an existing e-Learning System through modifications to the existing content to fit into a form that was automatically accessible by most mobile devices. A word of caution was however advanced by Serif and Ghinea (2008) who strongly believed that user's perspectives were important in mobile information access systems design for integration into existing systems, a view that the study of Yeh (2014) corroborates.

Banu et al. (2011) had a slightly different view on the driving force behind the rapid growth in the number and volume of mobile devices, and the growth rate of the mobile web. They were of the view that declining cost is a major factor in the emergence of mobile information access systems. While cost is actually a factor, the view of Hanson (2011) who sees the mobile Web as a heady place where users are presented every day with new, more efficient, and better ways to access information anywhere at any time, stands as a better reason for the growth of the mobile web and mobile applications. This is also the standpoint of the Essay UK Research Team (2018). Coming to the mobile devices operating systems, sundry authors are at a consensus that the Android and the iOS operating systems are the most popular (Shaheen, et al.. 2017; Jindal and Jain, 2012; Patil et al., 2017; Hill, 2017). Several studies have presented reports on both the android operating system and other operating systems. And based on these popularity ratings, this study picked particular interest in iOS being the closest contender to android as the basis for comparison. And the elaborate report of Hill (2017) which is all encompassing and authoritative is presented.

Hill (2017) believes that if one is buying a new smartphone today, chances are very good that it will run Google's Android or Apple's iOS mobile operating systems because he argues that these two platforms accounted for more than 99 percent of all new smartphones shipped over the last year, and even rose to 99.7 percent in 2017. In his words: Microsoft has thrown in the towel with Windows Phone, BlackBerry makes Android devices now, and there are very few other options worth considering.
According to Hill, both smartphone operating systems are excellent, they have far more in common than what divides them. He concedes however, that there are some important differences that were worth considering based on different several categorizations, that warrants making sensible choices.

These categories are: **Affordability**, which he concedes to Android; **Applications**, (on Google Play Store and Apple App Store), and this goes to iOS App Store; **Browsing**, (Usability and Curated Contents), which also goes to iOS; **Alternative App Stores and Side-Loading**, the winner is Android; **Battery Life and Charging**, goes to Android; Updates, won by iOS; **Customizability**, winner is Android; **Accessibility**, goes to iOS; **Calls and Messaging**, won by iOS; **Email**, goes to Android; **Maps**, clinched by Android; **Camera, on consistency basis** goes to iOS; **Photo Backup**, won by Android; **Cloud Services**, clinched by Android; **Voice Assistants**, goes to Android; **Security**, clinched by iOS; **Rooting** (Bootloaders, and Jailbreaking), goes to Android; **Cases and Accessories**, won by iOS;

In conclusion, Android wins 10 categories and iOS wins 8 categories, but iOS wins in some of the more important categories. Ultimately, different categories will be important to different people, so you should pay attention to the ones that count for you and make your decision based on that. If security and privacy are an important factor, then the iPhone is the obvious choice. If battery life is top of your list and you want to be able to customize your phone, then choose Android. Both Android and iOS are mature, feature-packed platforms with far more similarities than differences.

3. MATERIALS AND METHODS

The methodologies employed in this study are in two parts. The first part deals with the facts gathering phase using the survey instruments of questionnaires and the results/analysis of the responses of the survey. The second part deals with the modeling of the proposed mobile information access and services request system using object oriented design methodology.

3.1 Survey

Questionnaire was designed and administered to elicit some pertinent responses from a fraction of the student's population encountered in the course of some preliminary investigation with regard to this study. A sample copy of this questionnaire is contained in Appendix 1. The questions were made as easy as possible they were also relatively few in number. The idea was to encourage the students to participate by filling up and returning the questionnaires instantly. It comprised of three sections. Section one dealt with the personal data of the respondents. Section two ascertained the need for an application that would make information access easier, and the preferred devices for accessing information. Section three examined their preference in the use of mobile operating system, with emphasis on the Android operating system.

The questionnaires for sections two and three were prepared based on the five Likert scale of Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree, and the findings with respect to this two sections survey is presented next.

3.2 Survey Findings

Simple percentage (%) was employed to analyze the respondents' preferences for an application that would make information access easier and their preferred devices for accessing information. The results are presented in table 1. While that of the preferred operating systems platform is contained in Table 2.

Table 1: Analysis of Response to Easy Information Access and Preferred Devices for the Access.

PANEL		SA	A	U	D	SD	Total
1	Mobile devices are better tools for accessing information on the go than laptops	26 (54.2%)	14 (29.2%)	5 (10.4%)	2 (4.2)%	1 (2.1)%	48 (100%)
2	More convenient to access basic information from a mobile device than from a laptop or desktop	25 (52.1%)	15 (31.3%)	5 (10.4%)	3 (6.3)%	0 (0)%	48 (100%)
3	Information about lecturers is easily accessible	14 (29.2%)	15 (31.3%)	11 (22.9%)	6 (12.5)%	2 (4.2)%	48 (100%)
4	Student handbook is easily accessible	17 (35.4%)	16 (33.3%)	9 (18.8%)	2 (4.2)%	4 (8.3)%	48 (100%)
5	Student time table is readily available	18 (37.5%)	21 (43.8%)	6 (12.5%)	3 (6.3)%	0 (0)%	48 (100%)
6	Both the Regular timetable and examination timetables are easily accessible	13 (27.1%)	23 (47.9%)	9 (18.8%)	3 (6.3)%	0 (0)%	48 (100%)
7	I prefer immediate access to information through as few clicks as possible	31 (64.6%)	11 (22.9%)	6 (12.5%)	0 (0)%	0 (0)%	48 (100%)
8	My result are easily accessible	16 (33.3%)	20 (41.7%)	10 (20.8%)	1 (2.1)%	1 (2.1)%	48 (100%)
9	In case of an emergency, I can easily contact university personnel in charge	16 (33.3%)	15 (31.3%)	8 (16.7%)	6 (12.5)%	3 (6.3)%	48 (100%)
10	News and information on upcoming events are easily accessible	19 (39.6%)	13 (27.1%)	10 (20.8%)	4 (8.3)%	2 (4.2)%	48 (100%)
11	The university online libraries and e-books for coursework are easily accessible	12 (25.0%)	19 (39.6%)	9 (18.8%)	7 (14.6)%	1 (2.1)%	48 (100%)
12	I find it easier reading from my mobile device than from a computer system or laptop	20 (41.7%)	10 (20.8%)	7 (14.6%)	4 (8.3)%	7 (14.6)%	48 (100%)
13	It is more convenient storing and retrieving useful information on my mobile device than from a laptop or desktop PC	17 (35.4%)	13 (27.1%)	8 (16.7%)	8 (16.7)%	2 (4.2)%	48 (100%)
14	My colleagues and I share more information among mobile device than laptops	32 (66.7%)	11 (22.9%)	4 (8.3%)	0 (0)%	1 (2.1)%	48 (100%)

Source: from field survey, 2018

By implication, the majority of the respondents agreed that mobile devices are better tools for accessing information than other devices, because on the mobile devices, information about lecturers, handbooks, lecture and examination timetables, results and upcoming school events can be readily accessible conveniently. Also, a mobile device was largely preferred to other devices because useful information can be easily and conveniently stored on and retrieved from it. Furthermore, most of the respondents prefer to read from a mobile device to other devices. Therefore, it is reasonable to conclude that mobile devices make information access easier compare to other devices in ABUAD.

Table 2: Analysis of Response on Android as the Preferred Operating System.

PANEL		SA	A	U	D	SD	Total
1	Android OS is user-friendly	24 (50.0%)	15 (31.3%)	7 (14.6%)	2 (4.2)%	0 (0)%	48 (100%)
2	Android OS platform is available across several brands and types of mobile devices	27 (56.3%)	16 (33.3%)	5 (10.4%)	0 (0)%	0 (0)%	48 (100%)
3	It is easy and straightforward downloading and installing applications on Android OS	25 (52.1%)	17 (35.4%)	6 (12.5%)	0 (0)%	0 (0)%	48 (100%)
4	Android OS applications are more user-friendly	29 (60.4%)	13 (27.1%)	6 (12.5%)	0 (0)%	0 (0)%	48 (100%)
5	Android OS and application are relatively cheap	26 (54.2%)	11 (22.9%)	7 (14.6%)	4 (8.3)%	0 (0)%	48 (100%)

Source: from field survey, 2018

In summary, it was largely agreed and strongly agreed by the majority of the respondents that they have preference for the use of android operating system on mobile devices Therefore, it is reasonable to conclude that designing and developing an application for information access is best achieved with the use of android operating system.

3.2 Modeling of the Mobile Information Access and Service Request System

The modeling of the information access and request system was done using object oriented modeling methodology. The study adopted the Unified Modeling Language (UML) tools of use case, sequence diagram and activity diagram for the modeling. Use case diagram was used to show the system users and the various actions they can perform in the system. The sequence diagram was used to illustrate the flow and sequence of actions required to accomplish the system objectives. The activity diagram depicted the hierarchical structure of activities and the operations the users of the system can undertake. Figures 1, 2 and 3 depicts the use case, sequence and activity diagrams respectively.

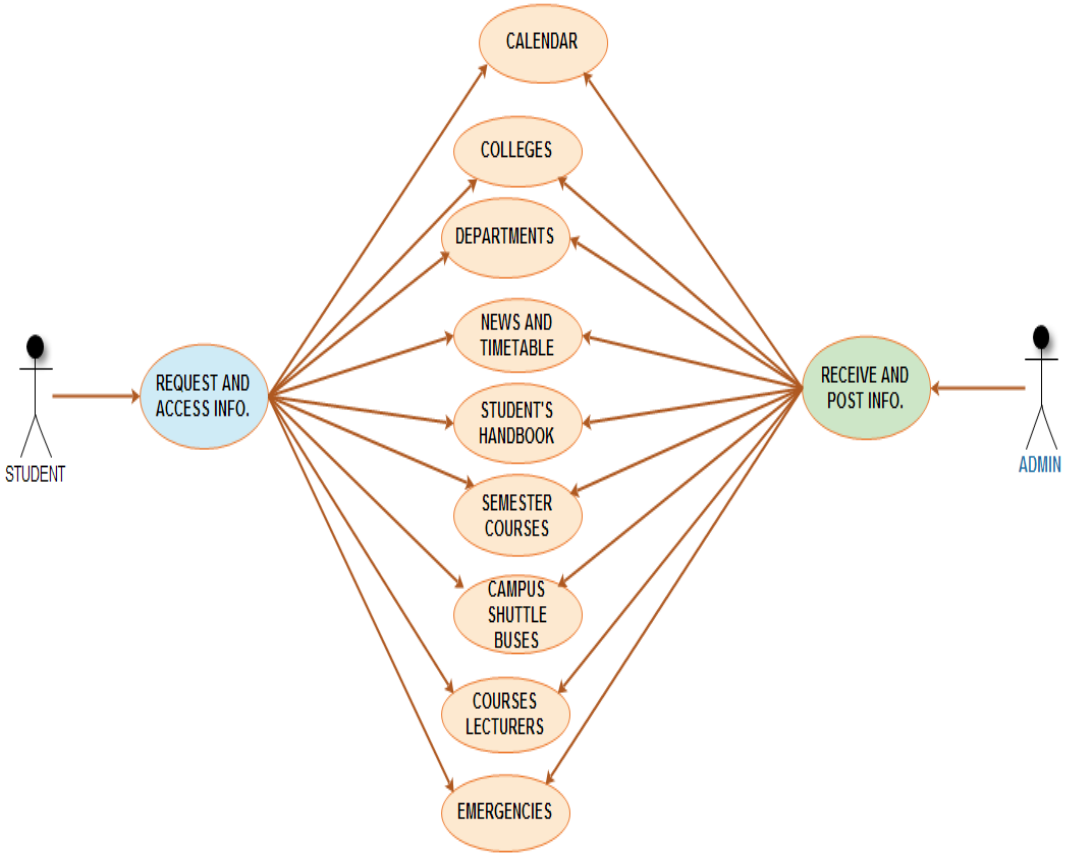

Figure 1: Use Case Diagram of Mobile Information Access and Request System

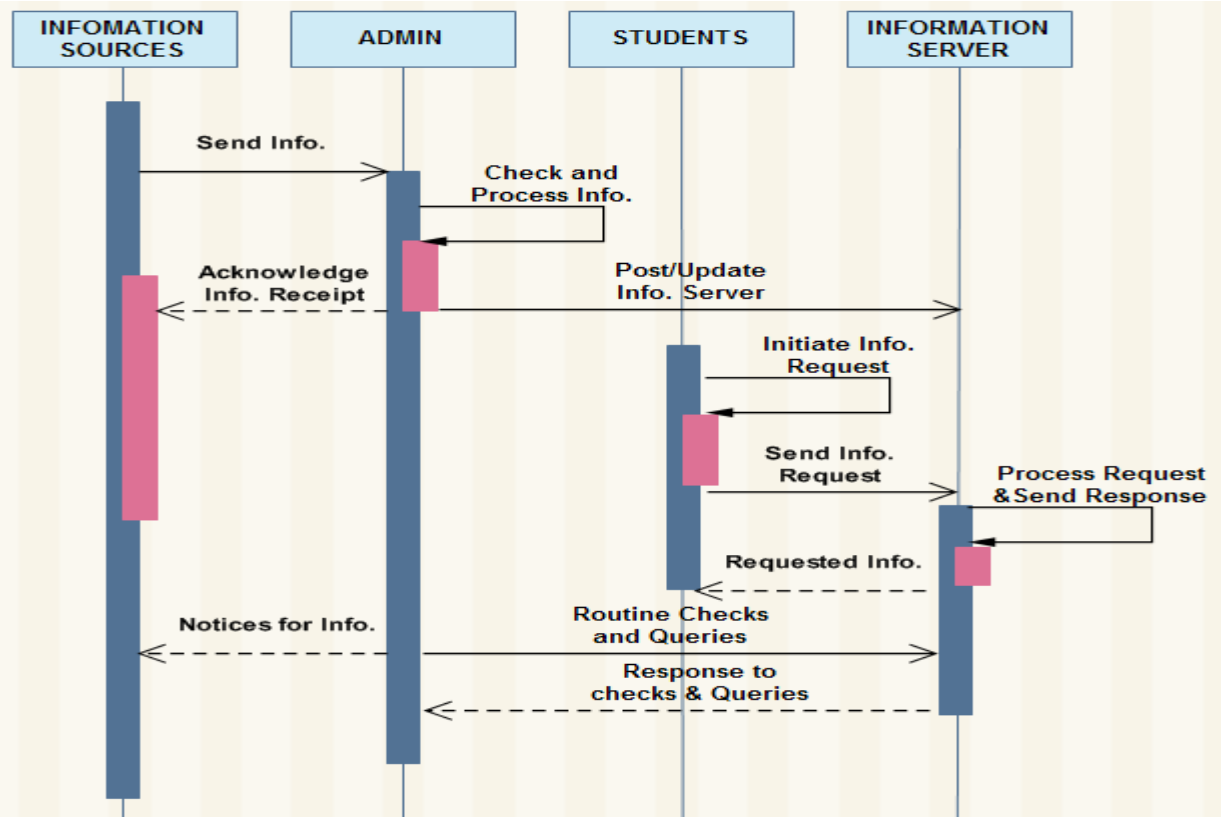

Figure 2: Sequence Diagram of Mobile Information Access and Request System

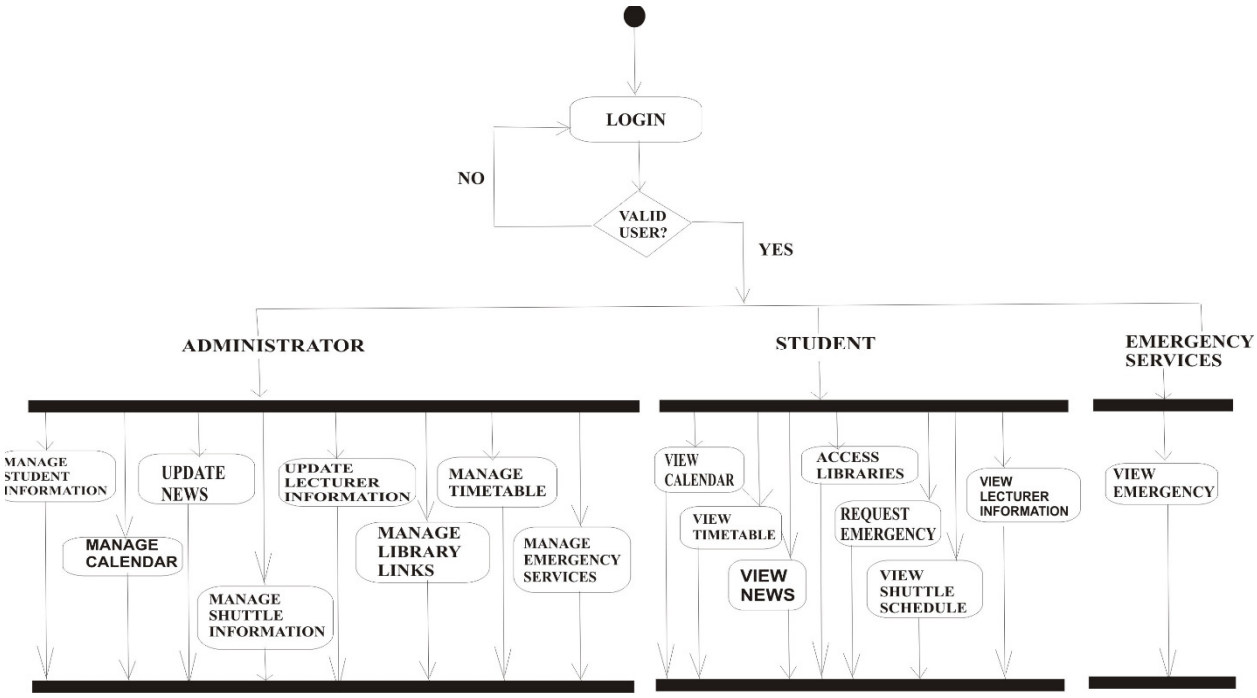

Figure 3: Activity Diagram of Mobile Information Access and Request System

3.4 Database Design

As in all information systems, database design is one of the core tasks required to achieve good results. This task was properly undertaken in this study. The detailed samples of the system database design is contained in Appendix 2.

Figure 4 shows the overall context diagram of the mobile information access and request system depicted as the system architecture.

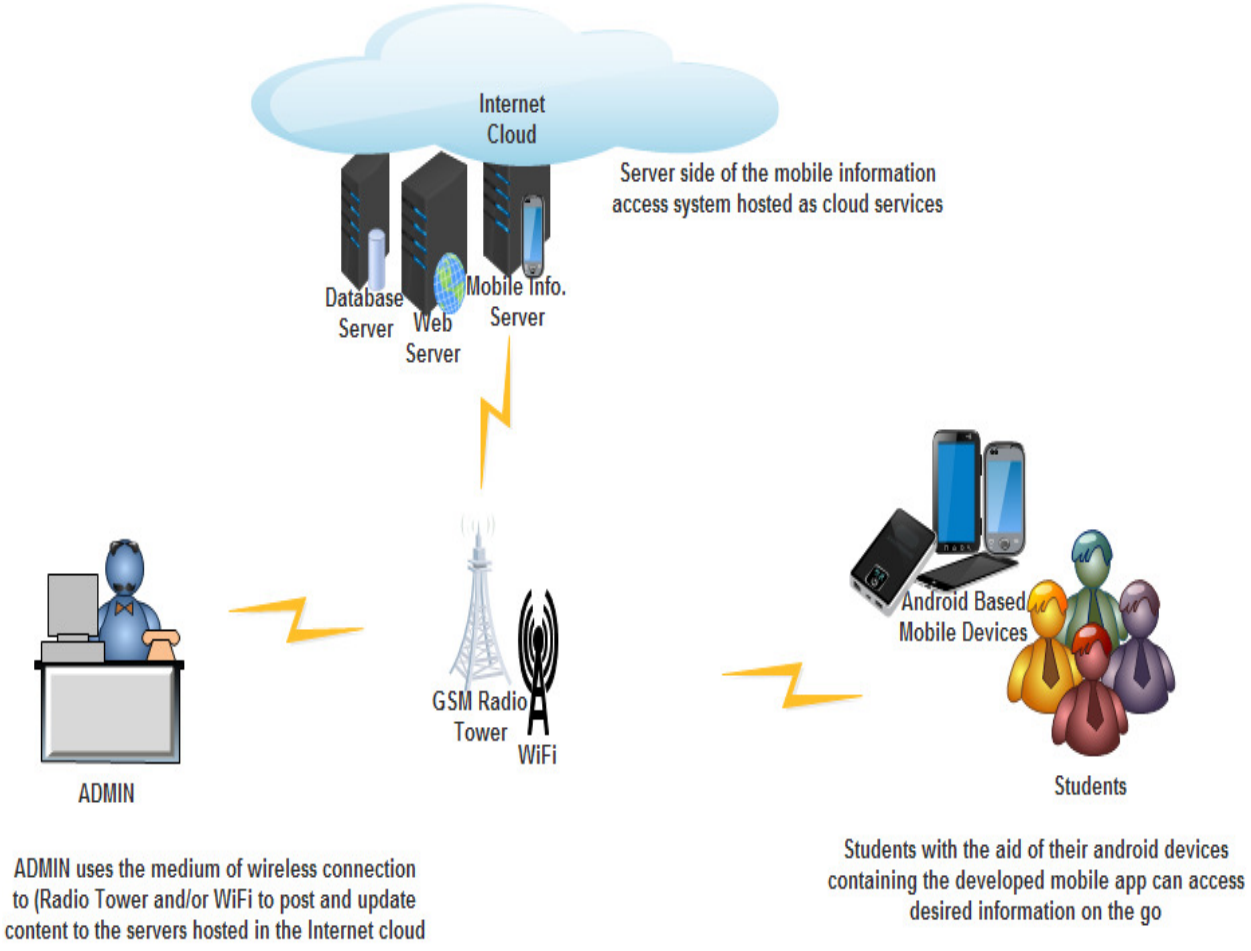

Figure 4: Context Diagram (System Architecture) of the Mobile Information Access and Request System

4. SYSTEM IMPLEMENTATION

The development, deployment and testing of the applications powering the mobile information access and request system is discussed in this section. The system comprised of two complementary sets of applications, in which one of them is web based and resident on the cloud, while the other is the mobile application (app) which is resident on the mobile device. The tools used in the development and the deployment of both systems is discussed next.

The Web (Cloud) Application: The Web application is the server side end of the system comprising of the database application and the system business logic. The database application was done using MySQL database management system. Some sample design of the database management system is contained in Appendix 1. The system business logic was developed using Hypertext Preprocessor (PHP) programming language. The developed Web application was deployed online (hosted in the cloud)
The Mobile Application: The mobile application was developed using android studios version 3.0.1. The application was developed on the desktop and then installed on the android operating system mobile device.

Java Script Object Notation (JASON): JASON was used to interface the system business logic application which was implemented using PHP with the mobile android application which was based on Java. JASON facilitated communication and data exchanges between these two programming languages.

4.1 Systems Testing

A real live deployment and testing of the entire system was undertaken in this study. As already explained, the Web aspect of the system was hosted online, while the mobile application was installed on an Android phone. The mobile application was launched and connected to the server which had previously being launched and populated with sample information. Figure 5 shows the opening page of the mobile system requesting for login details.

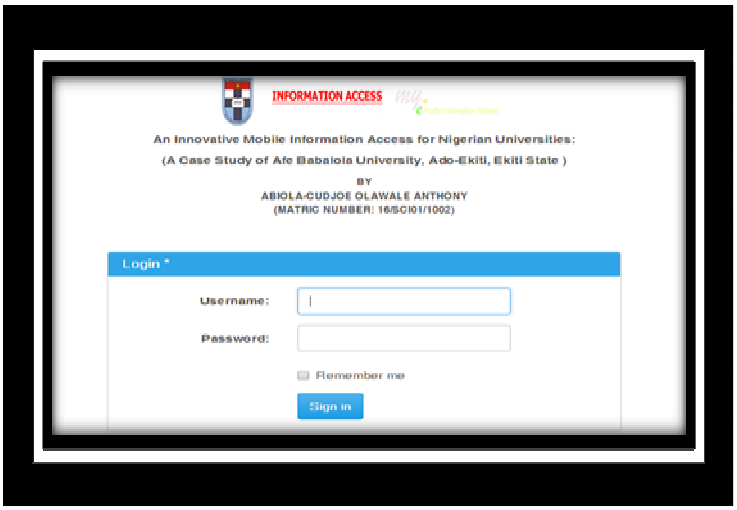

Figure 5: Login Page of the Mobile Information Access and Request System

On successful login by the user, a page displaying the icons for all the possible types of information available for request is opened. Figure 6 displays this main menu page.

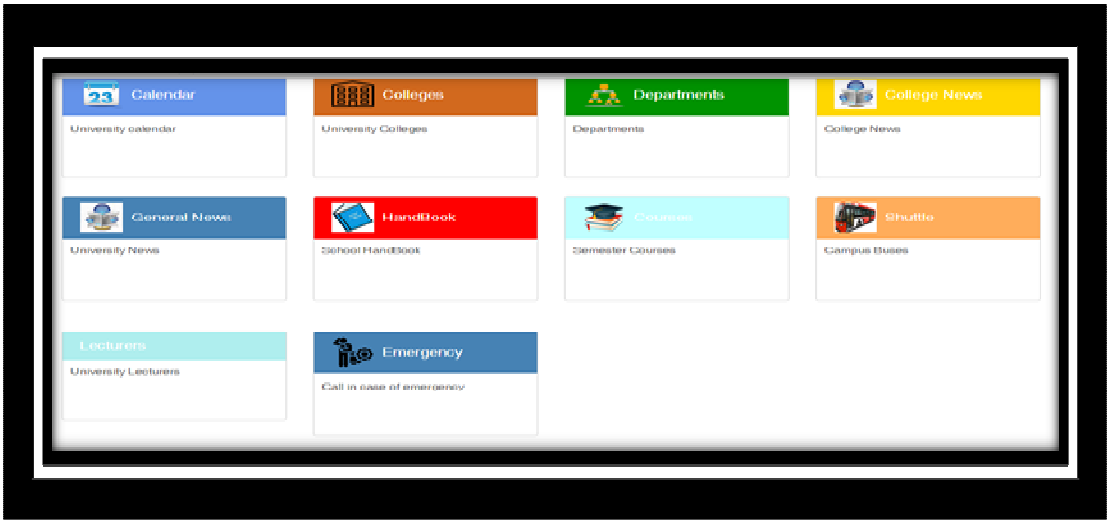

Figure 6: Main Menu Page of Mobile Information Access and Request System

Depending on the type of information required at the moment in time, the user only need to select the appropriate icon. Figures 7, 8, 9, 10, 11. 12, 13, 14, respectively shows the selections for results (access results), view/download school calendar, campus shuttle information, individual colleges information for students, hostel and dean of students related information to students, general university news (including upcoming events), emergency related information and students handbook/prospectus information respectively.

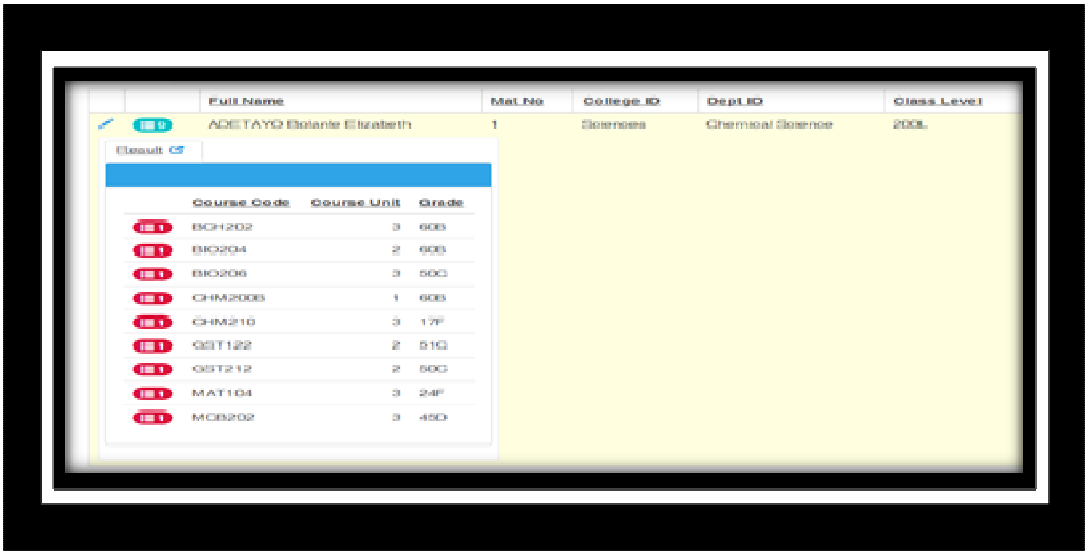

Figure 7: Student Result Page

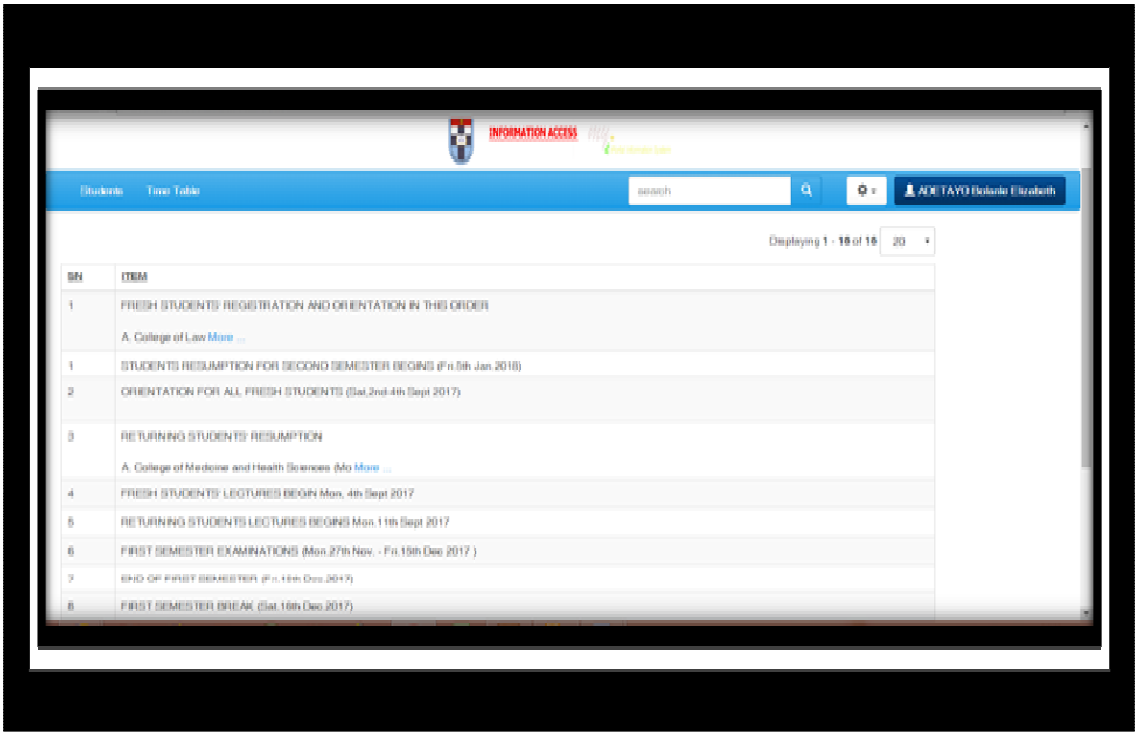

Figure 8: University Calendar/Upcoming Events

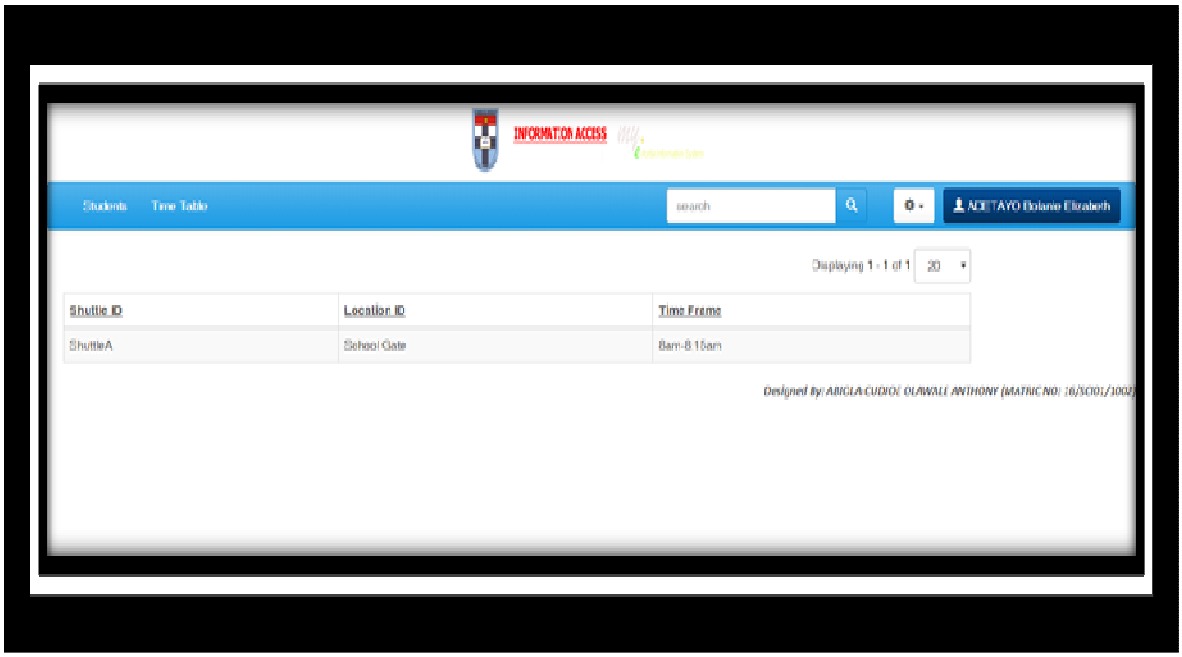

Figure 9: Campus Shuttle Information

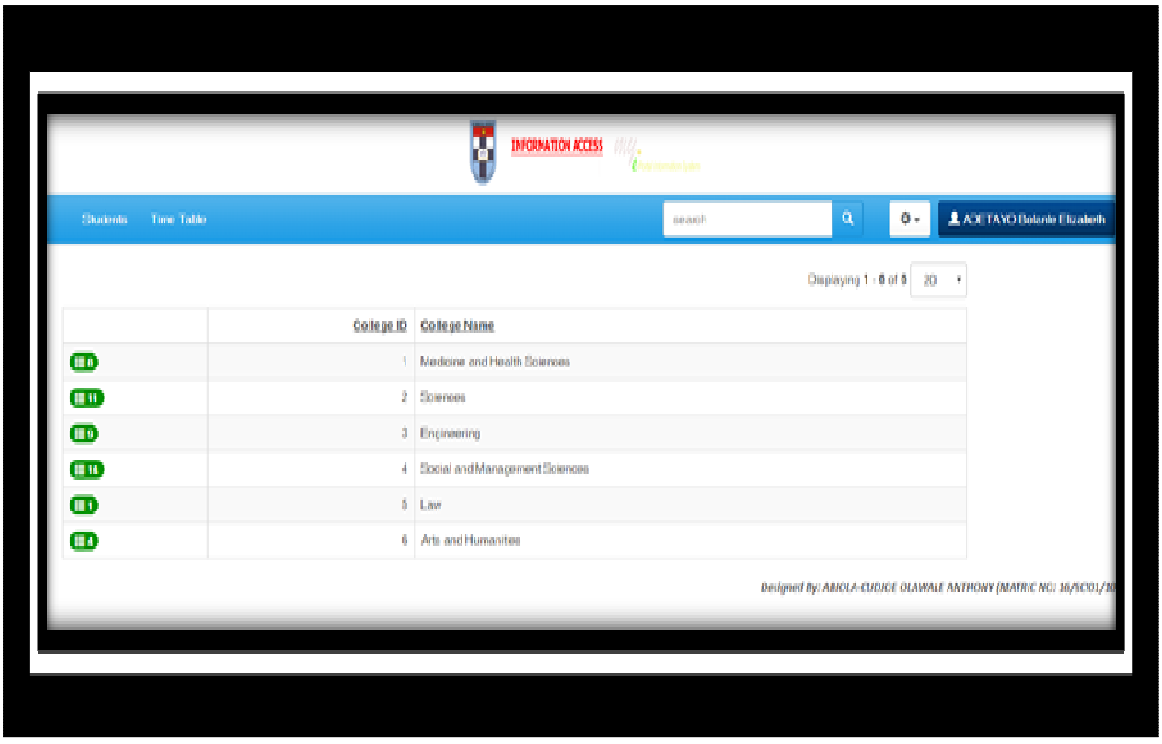

Figure 10: Various Colleges Information Page

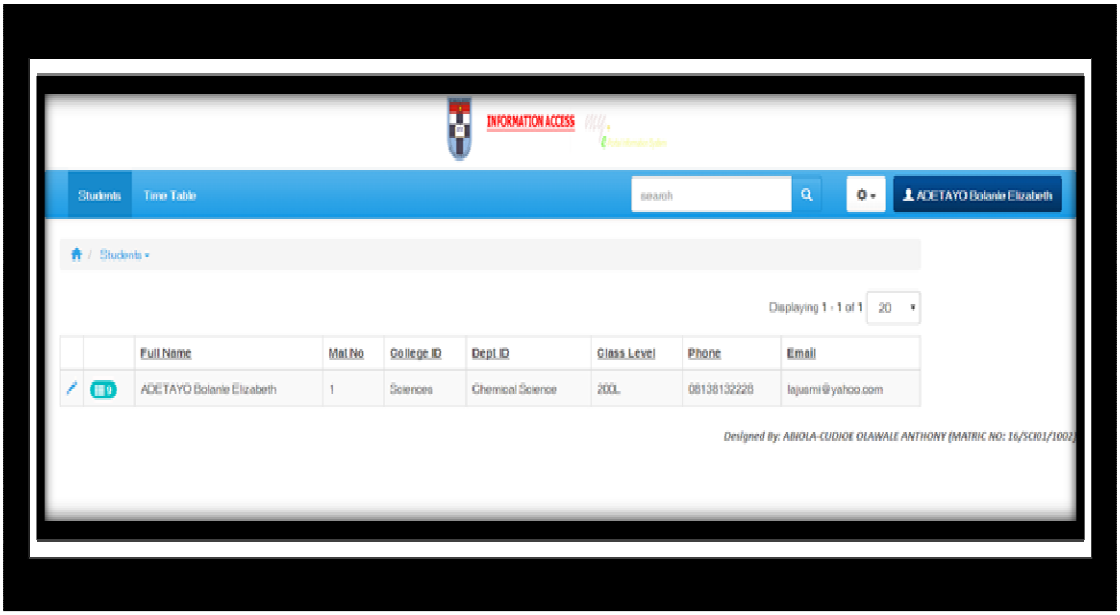

Figure 11: Student Information Page

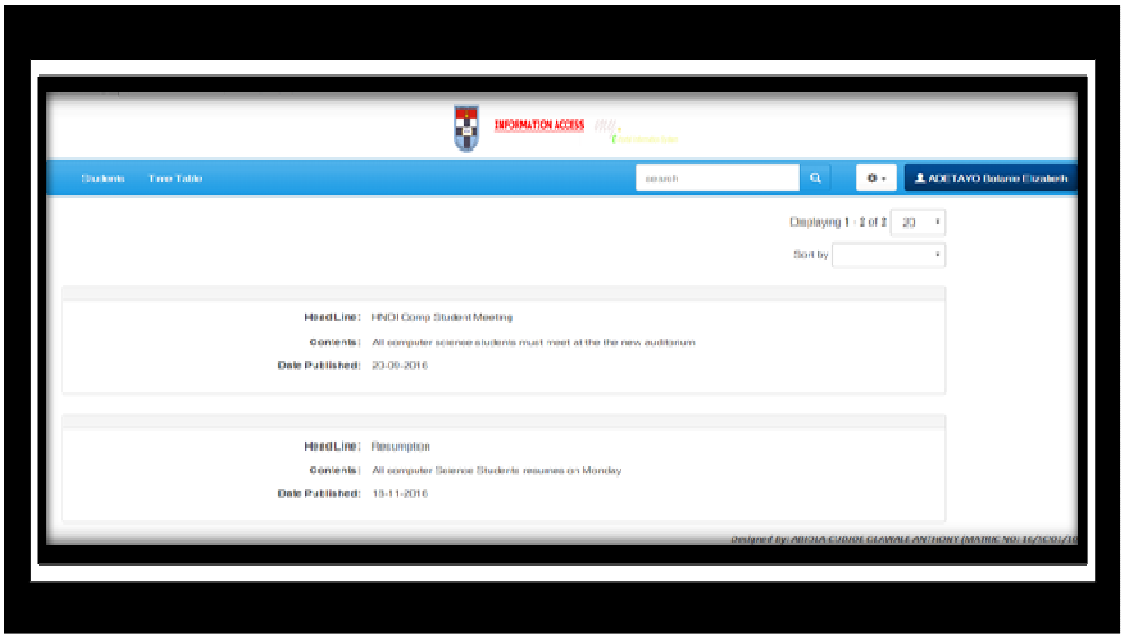

Figure 12: News Page

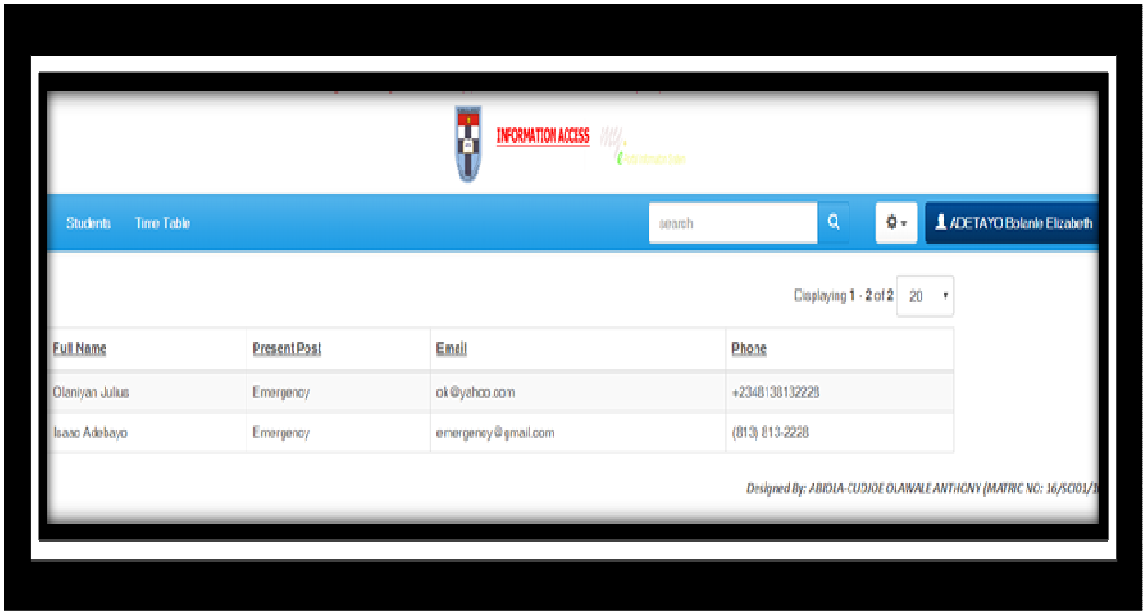

Figure 13: Emergencies Related Issues Page

Figure 13: Students Hand Book/Prospectus Download Page

How Scalability was Achieved

The modeling, development and deployment of the system was done in a manner that allows different types of contents addition to be made to the hosted Web based application, and the referencing icon to be added to the mobile app on the mobile device. It is also very easy to remove or change contents on both the Web end and the mobile end of the system. Also, request for services such as emergencies and other related demands like urgent repairs are automatically forwarded to the systems of the relevant units as email notifications. This implementation requires that such units keeps a constant watch on incoming notifications and be able to discern the levels of urgencies for each requests, in the event of cascaded request.

5. CONCLUSION

Mobile information access is currently one of the most important trends in the development and deployment of information products and services. And this can be attributed to the steadily increasing use of smart mobile phones and high bandwidth mobile infrastructure that provides constant connection to the Internet. Mobile information access allows users to locate and retrieve data and resources without being tied to a single location.

And as the demand for more types of complex information requirement grows, the specific application needed to access them will have to be developed. This implies that existing information provisioning systems infrastructures must be constantly modified and upgraded to support emerging requirements. For this study, the modification or upgrade required to support seamless mobile information access is twofold. The existing portal must be enriched with the capability to hold and dispense information to requesting mobile devices. And the requesting mobile devices must have and run mobile applications that will connect to and retrieve needed information from the upgraded portal. This is precisely what has been demonstrated in this study.

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APPENDIX 1: SAMPLE ADMINISTERED QUESTIONNAIRE

Department of Mathematical and Physical Sciences (Computer Science Programme)
College of Sciences Afe Babalola University, Ado-Ekiti

Dear respondent,
This study is conducting a survey as part of the requirement for the Dissertation titled "**A Mobile Information Access for Nigerian Universities: A Case Study of Afe Babalola University, Ado-Ekiti".** This questionnaire is designed to seek your opinion on questions pertaining to the research topic above, and the sincere expression of your feelings would be highly appreciated. Participation in this exercise is however voluntary and all information provided will be kept confidential and used for the purpose of the research only.
Thank you.

Yours faithfully,

Abiola-Cudjoe Olawale Anthony

Instructions
Do not write your name on the questionnaire.
Tick [√] and write answers that are applicable to you; where necessary.

Section A: Socio-Demographic Data

1. Age: (a) 14-19[ ], (b) 20-25[ ], (c) 26-30[ ]
2. Sex: (a) Female [ ], (b) Male [ ]
3. Academic Level (a) 100 (b) 200 (c) 300 (d) 400 (e) 500 (f) 600
4. College: (a) MHS [ ] (b) SMS [ ] (c) LAW [ ] (d) ENG. [ ] (e) SCI. [ ], (f) Others specify……

Section B: Preference in Use of Mobile Devices to Other Devices for Information Access
In this section mobile devices are limited to mobile phones and tablets
Please tick as appropriate

	STATEMENT	SA	A	U	D	SD
5	Mobile Devices are better tools for accessing information on the go than laptops					
6	It is more convenient to access basic information from a mobile device than from a laptop or Desktop PC					
7	Information about lecturers is easily accessible					
8	The student handbook is easily accessible					
9	The student timetable is readily available					
10	Both the regular timetable and examination timetables are easily accessible					
11	I prefer immediate access to information through as few clicks as possible					
12	My results are easily accessible					
13	In case of an emergency, I can easily contact university personnel in charge.					
14	News and information on upcoming events are easily accessible					
15	The university online libraries and ebooks for coursework are easily accessible					
16	I find it easier reading from my mobile device than from a computer system or laptop					
17	It is more convenient storing and retrieving useful information on my mobile device than from a laptop or desktop PC					
18	My colleagues and I share more information among mobile devices than laptops					

Section C: Preference on the Use of Android Operating System on Mobile Devices
Please tick as appropriate

19	Android OS is user-friendly					
20	The Android OS platform is available across several brands and types of mobile devices					
21	It is easy and straightforward downloading and installing applications on Android OS					
22	Android OS applications are more user-friendly					
23	Android OS applications are relatively cheap					

APPENDIX 2: APPLICATION DATABASE DICTIONARY

Table 1: adminlogin

Column	Type
userUsername	varchar(50)
userPassword	varchar(50)
userFullname	varchar(65)
userPhone	varchar(11)
userEmail	varchar(50)

Table 2: calendar

Column	Type
snID	int(11)
SN	varchar(2)
ITEM	text
calendarYear	varchar(20)
Semester	varchar(20)

Table 3: colleges info.

Column	Type
CollegeID	int(11)
CollegeName	varchar(150)

Table 4: general news and events

Column	Type
NewsID	int(11)
NewsHeadLine	varchar(100)
NewsBody	Text
DatePublished	varchar(25)

Table 5: handbook/prospectus

Column	Type
HandBookID	int(11)
YearSession	varchar(30)
HandBookFile	text

Table 6: Results

Column	Type
Id	int(11)
MatricNo	varchar(25)
ClassLevel	varchar(15)
Course_Code	varchar(7)
Course_Unit	int(11)
Grade	varchar(5)

Table 7: shuttle

Column	Type
ShuttleID	varchar(50)
LocationID	varchar(60)
TimeFrame	varchar(50)
Id	int(11)

Table 8: studentinfo

Column	Type
fullName	varchar(50)
matNo	varchar(20)
CollegeID	varchar(100)
DeptID	varchar(100)
ClassLevel	varchar(15)
Phone	varchar(20)
Email	varchar(50)