

Design and Implementation of a Tourist Portal for the Nigeria Tourist Board

Esiefarienrhe

Mathematics Department
University of Agriculture
Markurdi-Nigeria

Michael Bukohwo and

Statistics Department
University of Agriculture
Markurdi-Nigeria

Tivkaa, Manasseh Luper

Computer Science Department
University of Agriculture
Markurdi-Nigeria

Abstract

The internet and web-based technologies are transforming the way businesses are done all over the world. The Tourism market is a vital area to apply internet technology as it will bring tourist and tourism provider together to share information and showcase Tourist attractive and facilities to client who are spread over the entire globe. Tourism involves movement and the best way to choose facilities and make adequate arrangement before embarking on a trip is through the use of ICT tools and techniques. Therefore, this paper present the design and implementation of a Tourist Portal developed for the Nigeria Tourist Board to assist the country in harnessing and developing its vast Tourist potentials which abound in various states of the country. The Portal will increase the revenue particularly in foreign exchange to the government as tourist from difference countries will be able to have access easily to information and bookings. The portal was developed using Wampserver consisting of Apache2, PHP and MySQL. Macromedia Dreamweaver was used to develop the User interface. A test implementation shows significant improvement is tourist accessibility to tourism facilities and a significant increase in revenue generation by the board.

Keywords: Tourist, Tourism Portal, Information Technology in Tourism, SDLC, Nigeria Tourism

1. Introduction

Tourism is an important and integral part of our social life, and quite often people like to get involved in tourism expeditions. Tourism is the temporary short term movement of people to destinations outside the place where they normally live and work as well as day visit or excursions. It also involves the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure and other purposes (Ogbu, Idris&Ijagbem, 2011).

The tourism sector has also become an integral part of the global economy with some countries earning huge sums of foreign exchange from it, due to the high number of tourist arrivals globally. This fact is collaborated by (Anand, 2013) who estimated that tourist arrivals worldwide in the first quarter of 2012 grew at a rate of 5%. This growth signifies a corresponding increase in revenue from the consumption of tourism products.

It also forms a major source of income for many economies globally. According to United Nations World Tourism Organization UNWTO (2014), total export earnings generated by international tourism in 2013 reached a whopping US\$ 1.4 trillion. According to the latest UNWTO World Tourism Barometer, receipts in destinations worldwide from expenditure by international visitors on accommodation, food and drink, entertainment, shipping and other services and goods reached an estimated US\$ 1159 billion (euro 873 billion) in 2013. Similarly, growth exceeded the anticipated trend, reaching 5% in real terms (i.e. taking into account exchange rate fluctuation and inflation) (UNWTO, 2014).The above indices

indicate that it is time to position tourism higher by commercialization of the trade so as to maximize its capacity to promote trade and regional integration particularly in Africa.

1.1 Evolution and Development of Tourism

The world tourism potentials and availability of tourism products has its origins in the years immediately following the conclusion of the 1939-45 World War II (Ogbu et al, 2011). Better standard of living, increased leisure time and advancement in transportation resulted in a sharp increase in demand for international travel which has grown steadily to the present day. According to Ogbu (2011), Nigeria's tourism came to light in 1960 when it got independence. The country experienced an influx of tourist of different kinds visiting the country. In 1962, the Nigeria Tourist Association (NTA) was formed. It was responsible for policy formulation on behalf of the government. In 1976, decree No 54 of 1976 reconstituted the NTA to Nigeria Tourism Board (NTB). However in 1992, Decree 81 of December was promulgated to give birth to the Nigeria Tourism Development Corporation (NTDC). Through this Decree every state is to have a Tourism Board and Tourism Committee at the Local Government level. In 2004, the National Assembly reaffirmed this through an act of the parliament and its amendments (Ogbu, 2011).

Nigeria as a country can also be described as having enormous tourism potentials. According to (Yekini,Ojo,Okunlola& Dada, 2013), Nigeria has various categories of tourist centers across the nation which includes among others: Eco tourism, Beach tourism, National and Physical attraction, Rock Foundation, Hills/Highland, Cave and Tunnel, Spring, Manmade, EcologicalGardens and Cultural tourisms. Each of these categories boast of enormous tourism products that if properly managed and sold to prospective consumers can also attract foreign exchange for the country.

Previous studies suggest that ICT facilitates quick and timely information dissemination to consumers about various tourism products (Ogbu et al, 2011). This helps tourists to plan their trips and expenditure as well. One of the major problems currently militating against the rapid development of the tourism sub sector in Nigeria is the inability of authorities to properly harness the use of web 2.0 technologies in the tourism industry to benefit the country's economic growth. ICTs are changing significantly the ways in which traditional destination management activities (i.e. planning, development, marketing, promotion, delivery, management, coordination and monitoring of destination offerings) are being carried out in the tourism sector (Claudio, Giuseppina, Isufi, 2014). This point again highlights the role ICT is playing in service delivery in the tourism industry. Conversely, the use of ICT in Nigeria's tourism industry is limited and as such has not yielded the required benefits. This is an indication that the country has not yet deployed enough ICT tools and infrastructure in the tourism industry so as to be reposition for global competitiveness.

1.2 Tourism and ICT

ICT has become an integral part of our life. It has changed the way we live, interact and move. In general, ICT has redefined the lifestyle of the 21st century population in an amazing fashion. The use of ICT is a relevant opportunity for growing and strengthening the tourism industry (Claudio et al, 2014). Anand (2013) also adds that ICT has the capacity to empower consumers to identify, customize and purchase tourism products. Increasingly, people are using ICT platforms such as twitter blogs, facebook to share information and destination ratings, quality of service in hotels, restaurant resorts etc. A number of tourism organizations like hotels and resorts have turned to using the social media to promote/market their products (Anand, 2013). Jing (2014) also highlighted the use of social media channels to promote a company and its products as an indispensable tool to an organization's marketing strategy. Engaging consumers of tourism products on social media increases greater access to information and greater control over content creation by consumers than ever before. It creates awareness for such tourism products in an unprecedented manner. Because tourism is an information intensive industry as asserted by (Ogbu, 2011), ICT fills this gap by providing a platform for speedy dissemination of information. This

notion is articulated by (Claudio, 2014) who opined that ICT provide direct, cheap and effective access to (actual and potential) customers.

While the intention of the marketer of tourism products to launch a promotional campaign online using social media platform will be a marketing strategy, it turns out to be an awareness creating campaign that culminate in an online conversation between consumers of such products with the marketer having no control over the content that is created. Jing (2014) in his social media marketing analysis posited that marketer cannot dictate communicate on social media, instead they have to engage customers' interest and participation. He stated further that description of posts and comments on social media shows that it is only a form of conversational exchange. What this means is that the content created in the conversation on social media differs substantially from those found on customized websites created and used by tourism organizations.

While launching social media campaign for tourism products may serve some purpose, there are limitations to relying entirely on external ICT platform like the social media for a successful content creation, delivery, promotion as well as marketing of tourism products. Using social media extensively cut off managers of tourist product from vital statistics which help in demand and supply analysis and better planning. This is because what takes place on social media is mainly conversation as supported by Jing (2014). Obviously this kind of interaction does not translate into real statistics/figures that can be used effectively in market forecast and planning. Therefore there is a lack or limited knowledge on how to deploy web technologies especially the use of websites in managing and marketing tourism products in Nigeria. This work will therefore assist in the use of web technology for tourism in Nigeria by designing and implementing a tourist portal for use by the Nigeria's Tourism Board that will leverage the power of ICT and provide a platform for proper management and planning of tourism products in Nigeria.

2. Materials and Methods

The Structured System Analysis and Design Methodology (SSADM) which is a Software Engineering Methodology that involves system decomposition to sub-system and the systematic analysis of each sub-system were used in the design of the Tourist Portal. Flowcharts and Pseudo codes were drawn and written for the proposed solution. The SSADM includes the System Development Life Cycle (SDLC) which consists of Problem definition, Analysis, Design, Implementation, Validation and Evaluation as shown in Fig. 1.

The Expert System methodology, which involved knowledge engineering process of inference and knowledge-based, is also used in the work.

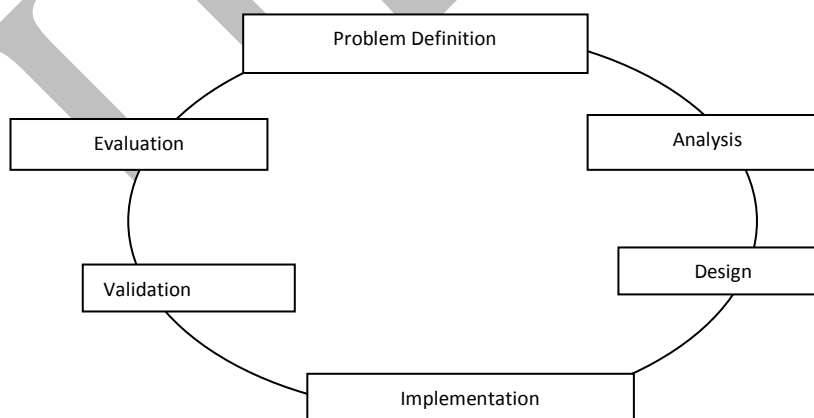


Fig 1: General Overview of the System Development Life Cycle

The system is developed as a 3-tier web-based facility (see Fig. 2) whereby tourist can assess the application using a user-friendly GUI that is connected to the application logic which in turn is connected to an underlying database facility designed using MySQL. With the increase in the use of the internet, web applications of this type provides web services as an instant means of information dissemination, resource allocation and statistical analysis of performance for the Tourism Board. This application therefore harnesses the key component of today's internet infrastructure. Underneath the infrastructure, relational database plays an important role, in a sense, as it organizes the data and makes the retrieval and insertion of the data possible in an efficient and secure manner.

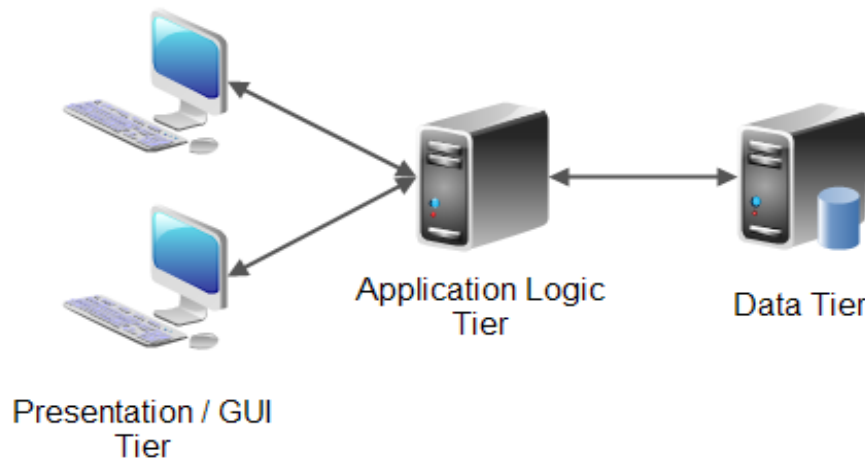


Fig 2: 3 – Tier Web application architecture

The presentation or GUI tier contains the user interface of the application through which the system interacts with the application logic. The presentation tier is "dumb", meaning it does not make any application decisions. It just forwards the user's actions to the application logic tier. If the user needs to enter information, this is done in the presentation tier too.

The application logic tier makes all the application decisions. This is where the "business logic" is located. The application logic knows what is possible, and what is allowed etc. The application logic reads and stores data in the data tier.

The data tier stores the data used in the application. The data tier can typically store data safely, perform transactions, search through large amounts of data quickly etc.

2.1 Application Development Tools

The tools used to develop the system are:

1. WampServer is a popular Open Source Windows web development environment. It provide us the platform to create the applications using Apache2, PHP and MySQL database. It also comes with PHPMyAdmin and SQLiteManager to easily manage the databases. Wimp Server installs automatically (installer), and its usage is very intuitive, because of its integrated nature it serves as our application as well as database server. All files are placed in the www subdirectory of the wimp installation. We used the PhpMyAdmin to create our database tables.

Dreamweaver was used to build the user friendly GUI for both Input and Output of the system.

PHP (Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It was used for the interaction with the database and to generate dynamic content.

2.2 Overview of the Tourist Portal Application.

The portal uses the 3-tier application architecture (Fig. 2) and it contains two sections. One section for the public and the other for the administration to enable them manage some information coming from the site. The Administrator's section will require authentication through a login interface.

The public section contains the following pages;

- (a) Home page
- (b) About
- (c) Tourist Attraction
- (d) Discover Nigeria
- (e) Travel Guide
- (f) Contact Us

The administrator's section contains the following pages

- (a) Admin home page
- (b) Sign in
- (c) View bookings
- (d) View contacts
- (e) Create user

Database Schema

The following are the database structure used for the application. Table 1 contains the fields needed to hold the booking details of the tourist making reservation for a tour.

Table 1: Bookings Database Structure

Field	Type	Null	Deafult	Extra
Booking_id	Int(10)	No	none	Auto_increment
FirstName	Varchar(30)	No	None	
LastName	Varchar(30)	No	None	
Phone_No	Int(14)	No	None	
Address	Varchar(30)	No	None	
VisitDueDate	Datetime	No	None	
Stay_duration	Int(10)	No	None	
Sitetovisit	Varchar(30)	No	None	
Arrival	Int(10)	No	None	
bookdate	Datetime	No	None	

Table 2: Contact Us Database Structure

Field	Type	Null	Default	Extra
Contact_id	Int(10)	No	None	Auto_increment
FirstName	Varchar(30)	No	None	
LastName	Varchar(30)	No	None	
Subject	Varchar(30)	No	None	
Email	Varchar(20)	No	None	
Issue	Varchar(100)	No	None	

datecreated	Datetime	No	None	
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Table 2 shows the structure of the Database Table that will hold enquiry information from users of the site. This information could be in form of suggestions and queries about facilities or services.

Table 3: User Database Structure

Field	Type	Null	Default	Extra
id	Int(10)	No	None	Auto_increment
First_Name	Varchar(30)	No	None	
Last_Name	Varchar(30)	No	None	
User_Name	Varchar(30)	No	None	
Password	Varchar(30)	No	None	
DateCreated	Datetime	No	None	

Table 3 shows the structure of the Database Table that will hold login details of Admin Users. This implies that those users that have privileges to manage the site. All logins by the admin users will be validated against this table.

3. Results and Discussion

The application is web based and can be deployed on the internet, on the local machine and can also be launched through a web browser. Unzipped all the files and dumped them in the *www* sub directory of the wamp server installation. They are already contained in the folder named “*touristPortal*” and accessed through the address <http://localhost/touristPortal/>. You can rename the folder to a different name but make sure you reflect that in the address too.

Before you launch the application make sure that Wamp server software is properly installed. To launch Wampserver, double click on it and wait a little while until its icon changes to green on the task bar. Once the address is correct, it takes the user to the we come page (Fig. 3) and then moves directly to the home page (Fig 4) of the portal as shown below:

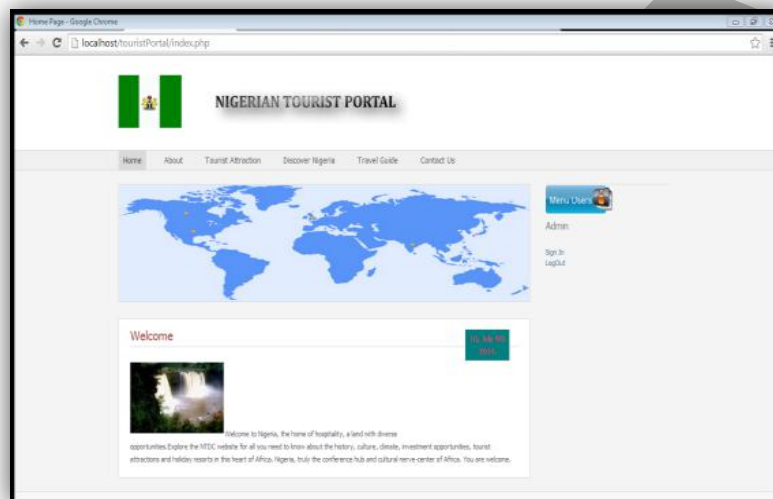


Fig. 3: Application Splash/Welcome Page

Once the user is on the home page, the user is expected to navigate the site using the menu items on the top of the page.

The tourist Attraction page once clicked will display a selected tourist attraction in the country as shown below.

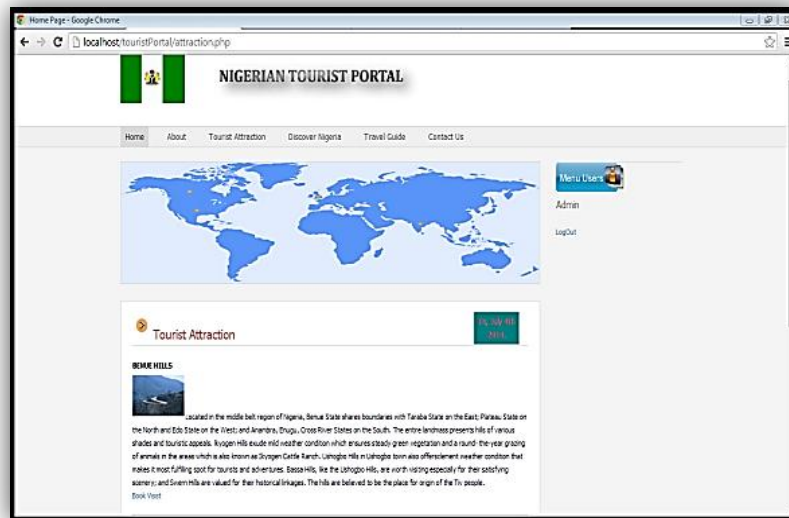


Fig. 4: Tourist Attraction Page

Information about each of them is given on the page and a link **“book visit”** is displayed beneath each of the product. Once the link is clicked, a booking page appears that enable a tourist to enter his visit details as shown in Fig. 5.

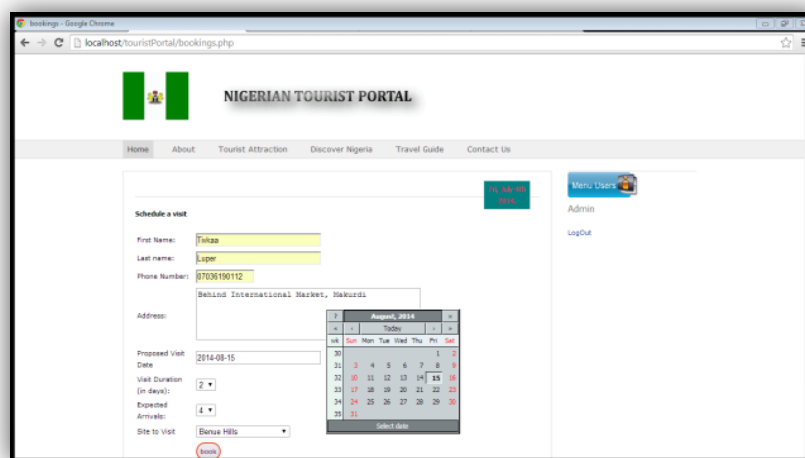


Fig. 5: Visit Schedule Page

Once the form is filled correctly and submitted the system generates a print out of this form. The reason for filling this form is to enable managers of such product to anticipate and plan for such visit. On arrival a tourist expected to show this print out and billing done according to the number of arrivals and duration of stay indicated on the printout as shown in Fig. 6 and a softcopy of it in case there is no printer for printing which can be saved for future use is shown in Fig. 7.

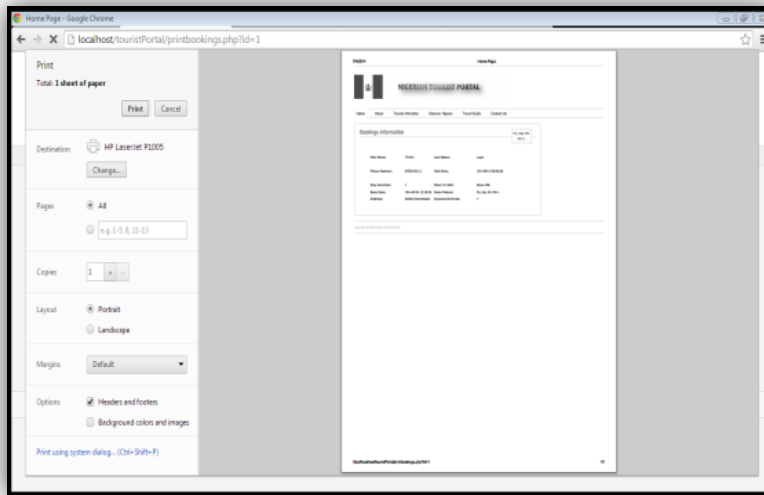


Fig. 6: Visit Schedule Printout with Printer Interface

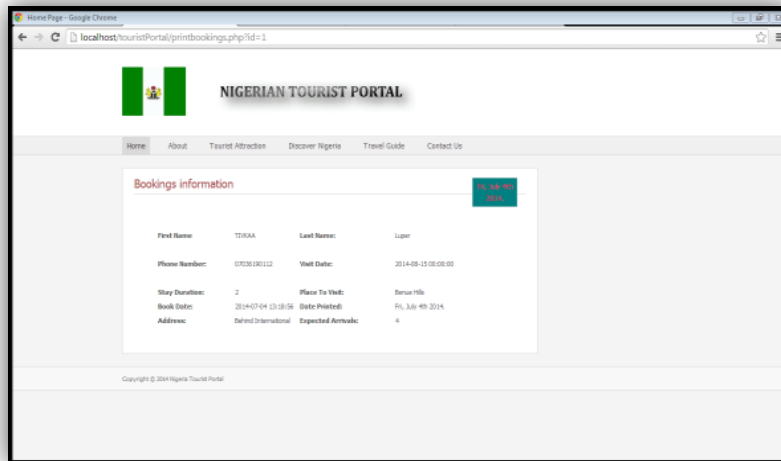


Fig. 7: Booking Printout without Printer Interface

The Admin home page can be accessed through a login page as shown in Fig. 8.

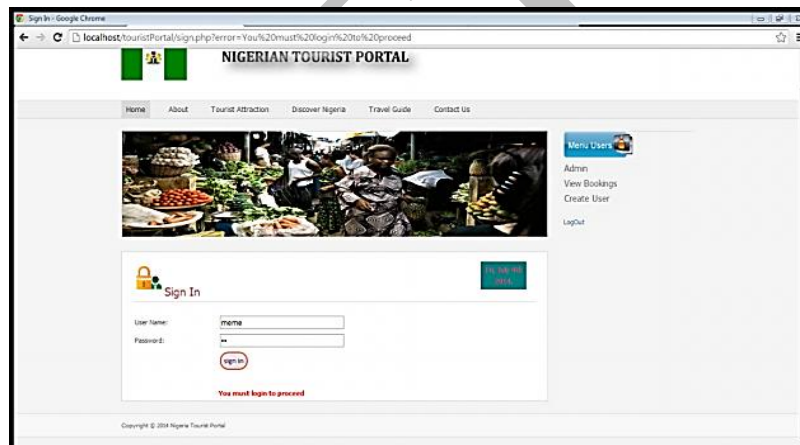


Fig. 8: Login page with login credentials

Where login is successful, the user is directed to an admin home page as shown in Fig. 9:

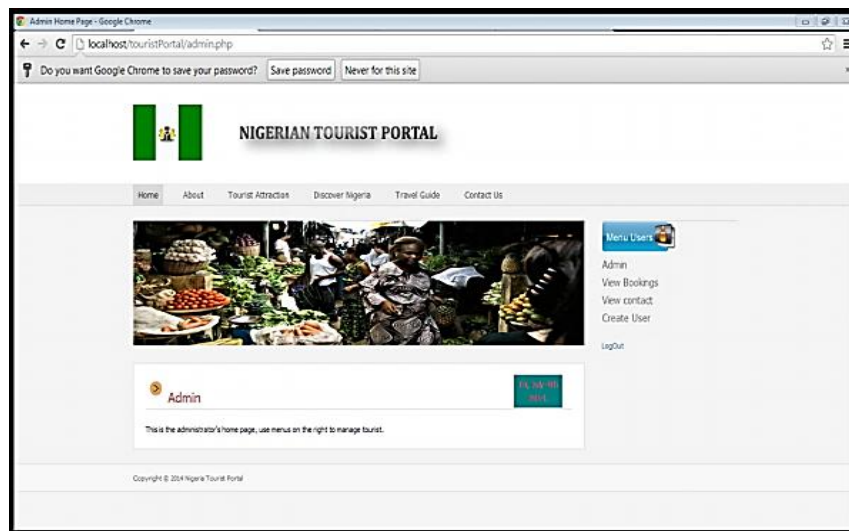


Fig. 9: Admin Home Page with various functionalities

On the admin page the user can view bookings, contact/enquiry records and also create a user. Clicking on the view booking menu will show the records of the booking made for the day as well as option for weeks and months. This is shown in Fig. 10.

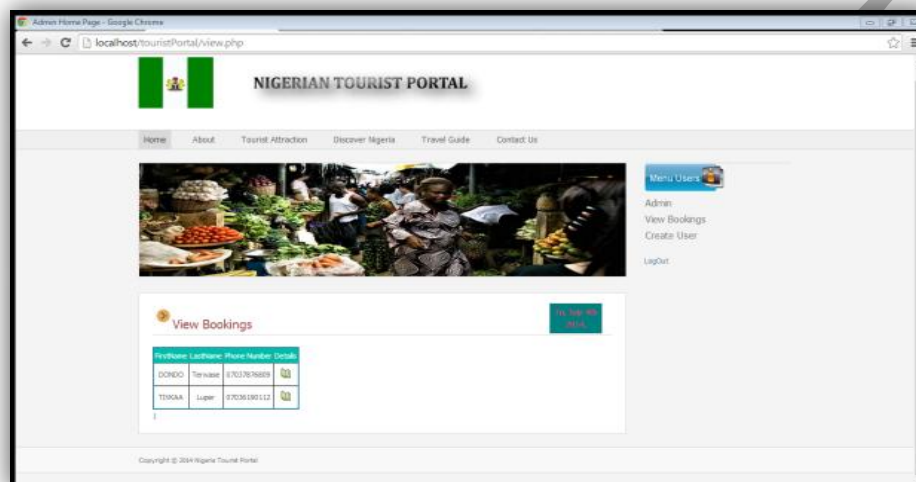


Fig10: View booking page with booking record

The interface shown above displays all reservation records available in the booking table and a link that displays the detail information about that particular visit.

4. Conclusion

This work focused on developing a tourist portal for use by the Nigerian Tourism and also looked at how ICT technologies can be used to better promote and manage tourism products.

It is essential that enterprise websites should not only be designed for content delivery but crafted with the latest technologies to improve the business operations. The proper integration of ICT and especially web technologies in tourism would benefit both service providers and customers bringing together other stakeholders as well, on a common platform. The selection and deployment of the right information communication technology tool is crucial to match the customer requirements with service dimensions as this will make it easier to retrieve information, identify suitable products and perform reservations. ICT if properly deployed will strengthen and promote the tourism industry.

References

1. AnandBethapudi (2013). The role of ICT in Tourism industry. Journal of Applied Economics and business 1(4) pp 67-79
2. audio Petti and Giuseppina Passiante (n.d). Getting the benefit of ICT in Tourism Destinations: Model, Strategies and Tools. Retrieved from: http://www.iajet.org/iajet_files/vol.1/no.1/Getting_on_6/6/2014
3. UNWTO (2014). Retrieved from <http://media.untwo.org/press-release/2014-05-13/international-tourism-generates-us-14-trillion-export-earnings>
4. JingGe (2014). Tourism Marketing Communications on a Chinese social media platform. In Rodolfo Baggio, Marianna Sigala, Alessandro Inversini, Juho Pesonen (eds.), Information and communication technologies In Tourism 2014: eProceedings of the ENTER 2014 Ph D workshop in Dublin, Ireland (pp 11-19) Dublin
5. Ogbu S.E., Idris S., and Ijagbemi A.B. (2011). Information and Communication Technology (ICT): A veritable tool for tourism development in Nigeria. Nigeria Computer Society (NCS): 10th International Conference July 25-29.
6. Yekini N.A., Ojo Olanrenwaju, Okunlola G.A. and Dada (2013). Analysis and design of low cost Information Communication and Technology-based application software for sustainable tourism development in Africa: Nigeria as a case study. European scientific Journal vol. 9(9).

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