



Development of One - Fit-All Intelligent Tourist Information System [Oitis] For Kogi State Nigeria.

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Abstract

Tourism has become a major income earner for many countries Worldwide having a contribution of about 11% of the world's GDP. Its contribution to trade and businesses and creation of employment is attested to by many authorities. However it is faced with some challenges which hamper its progress and maximum utilization of the enormous potentials. Among these challenges is the near absence of the information about tourism potentials of Nigeria and indeed Kogi state in distant nations and countries. When tourist eventually arrive the country, they are faced with problems of how to locate their choice destinations and how to interact with the locals. Any system that can provide the needed information about tourism destinations to potential tourist in their distant countries to enable them plan their visit and itinerary in a convenient and easy fashion would immensely reduce their rigour and enhance their zeal for visit. The procedure adopted was the integration of remote sensing, GPS and multimedia GIS and customization of Google map via Google my map Application. The multimedia data was used to correct the limitations of Google map as navigation tool to enhance its applicability. The cyber link power 2 Go8 was used in converting sound to wave files. While cyber link Photo Director 5 converted photographs and textual information to video clips. ULEAD was used in transferring multimedia elements from the digital camera into the PC. Other software used included the Movavi video suite used for fixing playtime of video and audio as well as converting the audio from 3gpp to MP4, the tunestotube software converted the sound and text into compatible format for the system

before finally being moved into the YouTube channel. All the multimedia elements were hyperlinked onto the Google map from the YouTube. The database therefore resides in the YouTube. The map generated is highly responsive and to every query raised, it gave corresponding answer.

Keywords: *Customization, Cyberlink, Movavi, tunestotube, multimedia, YouTube, One - Fit-All, Intelligent*

Introduction

Tourism has become a major income earner for many countries worldwide having a contribution of about 11% of the world's GDP. Its contribution to trade and businesses and creation of employment is attested to by many authorities. However it is faced with some challenges which hamper its progress and maximum utilization of the enormous potentials. Among these challenges is the near absence of the information about tourism potentials of Nigeria and indeed Kogi state in distant nations and countries. When tourist eventually arrive the country, they are faced with problems of how to locate their choice destinations and how to interact with the locals. Any system that can provide the needed information about tourism destinations to potential tourist in their distant countries to enable them plan their visit and itinerary in a convenient and easy fashion would immensely reduce their rigour and enhance their zeal for visit. It would also boost the

host economy as the tourist would be more engaged, spend more money and visit many points. The system developed in this research eliminates the job of docent and fixed interpretative signs. It shows the direction from your location, the distance and the time it would take to reach the POI. It is so named One - Fit - All as it affords the ability to be used anywhere in the world. This is so because the developed system is highly intelligent and senses its environment for any tourist location around while giving the user the direction, distance and time to reach the scene from any location the user might be.

Intelligence is the ability to grasp correctly, to tap from existing knowledge, to acquire and retain knowledge in order to be able to adequately respond to any situation or circumstance, or acquire knowledge and use it timely (Rudas and Fodor, 2008). Intelligence has two main

components namely: (1) the ability to sense the environment and (2) the ability to take actions based on such sensing to arrive at defined goals. There exist a continuous transfer of data between the intelligent systems and their environments which these system utilize in order to provide appropriate information to users to enable them take reasonable decision [Fritz, 2006]. They thus learn, remotely sense their environment and render relevant environmental information (IEEE computer society, 2011). They are easy to be used by both trained and untrained users, effective adequate and responsive to a variety of situations (IIS 2011). According to NASA (2011) they are self-governing, error-less and cooperative. Krishmakumar, (2003) saw it as system having the characteristics of being adaptable, memory-packed, flexible and highly knowledgeable. It is also conscious and has the ability to arrange and manage obscure and imprecise information. From the technical view point, their design involves knowledge depiction and machine learning amongst others

The Functions of Intelligent Tourist Information Systems.

In view of intricacies of the nature of decisions inherent in tourist environment arising from mutability and the degree of risk involved in unfamiliar locations (Hall, 2005; Jeng and Fesenmaier, 2002), the benefits of intelligent systems are enormous as they collect, process and present information with reference to personal or situational needs of clients. They act as trip councilors decoding users' preferences with the ability to evaluate feedback arising from end users (venturini and Ricci, 2006). Their principal aim is to help provide functions hitherto rendered by tour managers and travel agents, such as trip planning, scheduling and navigation etc. (krameret *et al.*, 2007).

In the view of werthner, (2003), the benefits of this system are automation, value generation and effectiveness. In the same vein, the European commission (2003) pointed out that intelligent systems are necessary to enhance the valuation of tourism importance as well as enhance the well being of a multitude of people in difficult situations.

Tourism is one of the major income generators with contribution of close to 11% of the worlds GDP and involving one billion people globally in the second half on the 20th century. It is the only sector with varied activities impacting positively first any economy. Infact, it was one of the first to engage in electronic business like the online reservation systems which is the precursor of the present day electronic trade platform (Cenamor *et al.*, 2017).

As a result of the advancement in ICT, businesses including tourism are finding it difficult to adequately complete without it. The ICT is useful to tourism in that it enables it to store and manage information effectively and enabling competition as it assists decision makers and tourists to make timely investments as well as manage their resources prudently.

It has the potential to pass on the articulated and carefully planned developments that abounds in Kogi State in attractive and luring modes to the tour seeking world. It is highly pertinent to Nigeria as a nation to create an excellent mental picture of its tourism potentials to the world as there exist an impression on the minds of potential tourists that there is none existing infrastructural facilities for tourism in Nigeria and indeed Kogi State. This misunderstanding could be wiped off by integrating Geoinformatics with IT to produce intelligent information system tourists. Such information system has the capability of satisfying the demands in the tourism industry as it would help planners and decision makers in the industry.

STATEMENT OF THE PROBLEM

According to Kentris *et al.*, (2006), Mobile tourist guide application can be grouped into two

- i. The Application software that must be set up and made to run on computer hardware in advance – these are termed pre- installed App.
- ii. Those that use the web to navigate using hyperlinked documents to give the information with the aid of an APP. They are called web – application and are also termed platform independent APP.

The former has some disadvantages which are remedied by the later that is of interest in this research. The latter are easily accessible, worldwide as long as there exists network connectively.

Grabler *et al.*, (2008) outlined the major challenges of creating intelligent tourist map as two namely:

1. The inability/ability to evaluate the significance of landmarks to the tourists for whom the map of made
2. The way and manner of presenting /rendering the information such that most significant land marks are highlighted and differentiated from less or non-important ones.

Grabler *et al.*, (2008) also added defects of digital map to which Google map belongs to include:

- i. Poor recognisability of land marks – whereby map users have difficulty in recognizing important land marks as no further visual aiding information is provided.
- ii. The surrounding environment of landmarks not being shown
- iii. Poor generalization where all buildings are rendered at the same level and more important ones are not shown differently leading to complexity is display.

Also Ogbuke *et al.*, (2008) declared that geoinformed tourist maps must provide the tourist with such information required by them in their far away countries.

AIM AND OBJECTIVES

The aim of this research is the development of intelligent tourist information system for tour planning and execution

The objectives include the following:

1. Determination of the relevance of arte facts to the end users of the tourist map
2. Presentation of the map to end users by differentiating important landmarks from less important ones
3. Development of the handheld component for tour execution and development of the online component for tour planning
4. Development of the Novel database system for the online ALS in multimedia

METHODOLOGY

STUDY AREA

Kogi State popularly called the Confluence State is one of the six states that makes up the North central states of Nigeia. It has a land mass of 29,833 KM² and was created on 27th August 1991 from both Kwara and Benue States. On the North East, it is bordered by Nassarawa state, to the east by Benue, to the South by Enugu, Anambra and Delta States, to the West it is bordered by Ondo, Ekiti and Kwara States to the north it has Abuja and Niger as neighbours.



The state has some artifacts of repute including Lord Lugard House, European cemeteries among others. [<http://en.m.wikipedia.org/wiki>].

Figures 1 Kogi State (Source Kogi state Bureau of Lands). Figure 2 map of Kogi State on Google My Map.



Fig. 2: Map of Kogi State on Google My Map.

Source: Author

DATA COLLECTION

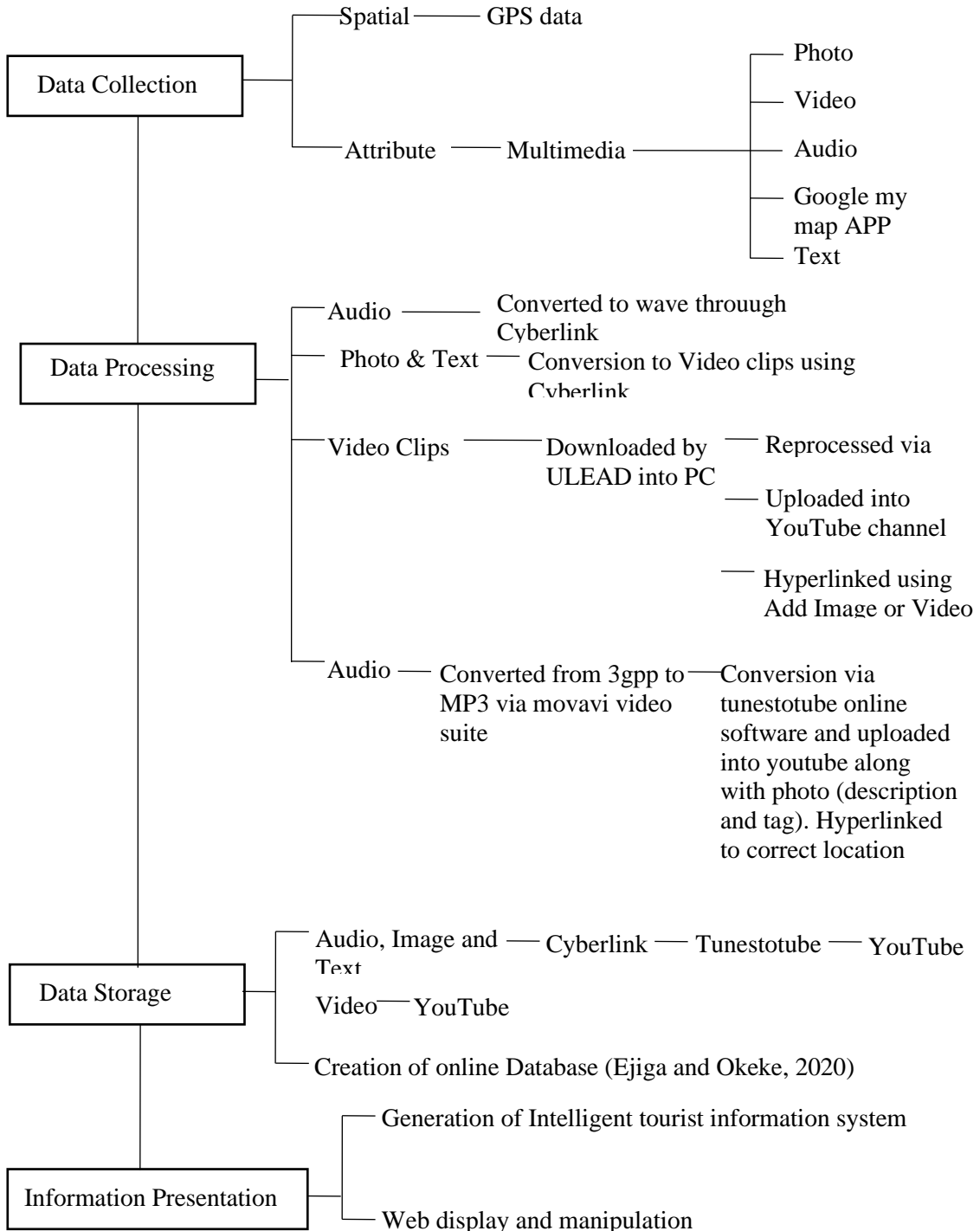
The data for this research was collected through the primary and secondary media. The primary data medium had to do with field observations to obtain the spatial and attribute data.

The secondary data was obtained principally through the Google My Map APP. Other sources for this work included journal papers, relevant literatures on tourism and internet materials.

Attribute data. The attribute data included video, audio, photographs and text. A digital camera was used to acquire the video, audio and photographs. The video was rendered in (.avi) format. The photograph in (.jpeg) and audio was in

window media audio (.wma) and 3gp formats. The Google map was in its raster format and the text was in Microsoft (.doc).

A flow chart of the adopted methodology is as shown below in fig 3:



Source: Author

SOLUTION METHOD

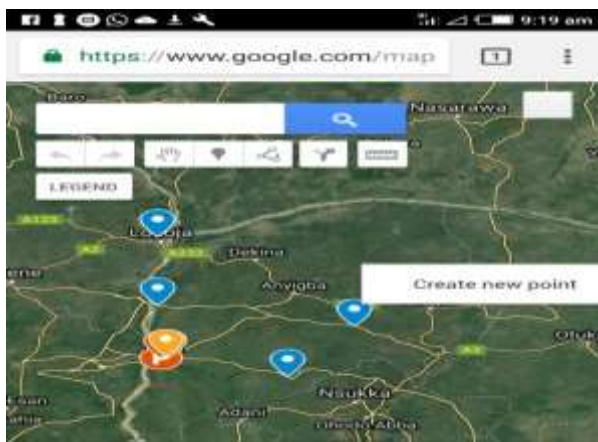
The audio data was converted from 3gpp form into MP3 and MP4 form via Moravia video suite and again reprocessed India the online tunestotube software before being uploaded to YouTube along with the photographs and textual information. The video integral had a preliminary processing via Cyberlink and Movavi software and then finally uploaded to YouTube. The relevance of artifacts was done by identifying the historical scenes and discriminately mapping them along with their attributes and their surrounding information.

The method adopted was by customizing the Google map using Google my application. This approach was informed by the advantages accruable from using the web-based or plat form independent application highlighted in statement of the problems.

The Cyberlink power 2 Go 8 assisted in the conversion of sound to wave files, the textual information and photographs were similarly converted into video clips via the Cyberlink Photo Director 5. Before this, the video clips were downloaded from the digital camera using ULEAD video studio cord into the HP core i7 PC. The video clips and audio underwent compression and then hyperlinking through the incorporated GIS of multimedia

DEVELOPMENT OF THE HANDHELD COMPONENT

The handheld component of the intelligent system was designed and developed to be downloadable into any cell phone with GPS receiver by simple login to the website of this system using the web address. The information would be stored in the hard disk of the device. Hence on identification of any POI (point of interest) through the GPS chips, or physical sighting, the location would be recognized and oriented to provide the necessary information required by the tourist. It also provides navigation when the coordinate of POI are imputed and required.



This mobile component is used on the field to actually execute the trip as it is very portable

DEVELOPMENT OF THE ONLINE COMPONENT

The architecture of the online component is the same as the mobile one. The only difference

Fig. 2.2.Development of Handheld Component.

here is that instead of being used during the tour, it is used to correctly plan the trip right from home or in the hotel room before actually embarking on the tour. Users employ this widows to write comments and notes, save necessary itineraries and make hard copies for possible usage at the POI.

RESULTS

1. The importance of artifacts to end users was examined and artifacts were carefully identified, highlighted and discriminately mapped out around the state ensuring that those of long standing historical records were chosen.
2. The map presented to users was customized Google map with many embellishments in a manner that important landmarks were quantitatively and qualitatively distinguished from less important ones
3. The handheld trip assistant and online components were developed with a website. The website ensured that information was stored in a continent location on the web and downloadable for use in online mode for tour planning and handheld mode for tour execution on the field.
4. A Novel Database System was developed as elaborated in Ejiga and Okeke (2020).

DISCUSSION OF RESULTS

The challenges of creating Intelligent Tourist Maps and those of all other digital maps identified by Grabler *et al.*, (2008) are remedied by this research. Also remedied is that of Ogbuke *et al.*, (2008). Features shown on the map are not at the same level of importance. Most important ones were carefully chosen, mapped and highlighted for clarity against less important ones. The context information which is the surrounding environment of any landmark providing information about its function and meaning is addressed as multiple/multimedia information is provided. The video and still photographs provides enriched details of the background. The audio narration provides oral details of the artifacts. The textual information gives enough literal explanation. Further to these, information about the state's tourism potentials are made available and handy to the tour seeking world in their far away nations and countries

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