CHAPTER TWO

LITERATURE REVIEW

Over the years, map have been used to depict information about surface of the earth. A map is simply a visual representation of an area, they depict are spatial representation of features of the earth surface. They show physical features that are positioned and are in relation to one another. Fairly maps can be described as accurate static two-dimensional representation of of three-dimensional space (usually in paper, cloths etc.). These days, maps have been dynamic, they are usual in digital format and are more interactive and user friendly (Asquo, 2010).

A street guide map is a type of map that focuses on the locations of street in an urban area (Ekpele et at,. 2012), they are product to show up to date information about the roads presents in an area because of this, data employed in the production of street guide maps has to as much as possible, depict in detail the nature of the lace to be mapped and with the use of remote sense and geospatial information systems (GIS), this is possible with the advent opf technology like global positioning systems, remote sensing GIS, the speed and quality of map making has greatly improved.because of this, maps created are not dust maps but have become a reliable source of information that aids good decision making and planning (Iteywood et al, 2006).

Since there are a lot of factors to be considered in planning and decision making, base map is necessary to capture as many essential information as possible with high degree of accuracy. Base map is a map showing important outlines and used for the plotting or presentation of specialized data of various kind. They are produced by or theorectifield imagery that forms the background, setting for a map. Over the years, satellite image both the land use has been using different human endeavor to solve different spatial problems but the level degree accuracy in positioning and spatial resolution has been questioned especially by surveyors.

Digital mapping refers to the use of digital technologies for creating, managing and analyzing spatial data. It incorporates geographic information system (GIS), remote sensing (RS), and various surveying technologies to produce accurate, dynamic and easily accessible maps. In the context of the surveying and geo-information, department, digital mapping enhances the efficiency of spatial data collection, analysis and visualization making it essential for a range application including urban planning, environmental monitoring and disaster management. With advancement in geographical technology, digital mapping has becoming a critical tool for the surveying and geo-informatic disciplines. Traditional method of map in accuracy while digital mapping ensure real-time data updates, higher precision and a variety of analytical capabilities. The application of digital mapping is crucial in sectors such as infrastructure development, land management, resource exploration and environmental studies.

Map depicts natural and human induced change on earth at a fine resolution for large areas and over long period time. Maps, especially historical maps are often the only information sources about the earth as surveyed using geodetic techniques. In other to preserve these unique documents increasing number of digital map achievers have been established driven by advance in software and hardware technologies, since the early 1980s, researchers from a variety of disciplines including computer science and geographic have been working on computation methods for extraction and recognition of geographic features from achieve image of maps (digital map processing). The typical result from map processing is geographic information's that can be used in spatial and spatiotemporal analysis in geographic information system environment which benefit numerous research field in spatial and social environment and health sciences.

However, map processing literature is spread across a broad range of disciplines in which maps are included as a special type of image. This article presents an overview of existing map processing literature techniques with goal of bringing together the past and current research efforts. In this interdisciplinary field to characterized the advance that have been made and to identify future research directions and opportunity.

Digital mapping methods for capturing and visualizing field data are increased in using industry and provide alternative to traditional mapping techniques that students learn in their academic courses. Over the past two years, a range digital mapping and 3.D visualization method have been introduced

into the teaching programe in the department of earth science at the university of Durham and are used in preparation for field classes during field work and in past field activities.

Classes provide the opportunity to use research results to enhance student learning and understanding of the natural environment in encouraging more rigorous and quantitative data collection and increase student awareness of industry practice. We recommend this approach as a way to achieve stronger line between teaching and research in earth science department mobile. GIS is a version developed for PDA that can exchange information with more general propose desktop version. GIS have involved from their early use as a mainframe mapping software of an information management system for organizing, visualizing and analysis spatially oriented data.

Since GIS becomes commercially available in the 1980s, GIS product are now used in large number of application that deal with spatial data including social and emotional planning, marketing, facility management and resources assessment. In its original use, GIS largely dealt with 2.D data that was mapped onto the earth surface (Rhind, 1992). However, it was recognized that in order to deal with volumeter spatial information or 3.D geometric from sub-surface data, A 3.D GIS or a GSIS (Geoscientific information system) was required for such system. For example, gocud, petrel. Arescene"Tm) have now been developed for commercial purposes.

During field data collection, GIS vector data in the form of points, lines and polygons are required at each G.P.S determined coordinate in 3D space points data are the location where observation of an out crop such as bedding, colors textures, foliation and lineation etc are stored as line vectors by following the structure in the field and acquiring 3.D coordinate that represent nodes of the line. Areas occupied by different rock types are stored as polygon vectors in a similar way. In addition to producing an accurate and efficient means of collecting field data, digital mapping techniques open up new possibilities for quantifying many types of uncertainty associated with the mapping process and using this uncertainty to evaluate the validity of completing interpretation.

The purpose of this project is to develop a digitalize environment capstone history of division college for the project which expands on a senior environmental capstone project that combined aerial photocopy that combines remotely sensed data, historical maps and oral histories of map environment changes thought deviation college history. The previous project created a sense of maps using Arc map 10.1 untitled with a rich historical narrative and time to analyze deviation college environment history, while the capstone is comprehensive, its presentation as a manuscript is not sufficient for presenting various maps, timelines and image as cohesive unit. By presenting the above materials as a digital neat line exhibits, this project allows for internally and inclusivity throughout the web. Many authors have demonstrated the importance of developing environmental histories, the significances of the college campus in an environment history context and the importance of mapping emerged as a reputable discipline as time have progressed into digital age, the ways in which authors addressed and present environmental history problems should continuously develop. The discipline of environment is recognized and accepted as a study. Noted, environmentalist such as Henry David Thorem promoted a moral and political agenda towards the environmental scholarship, more recently, Donald Hughes (2006) defined environmental history as they have lived, worked and thought on relationship to the rest of nature through the changes that brought by time. Although, the discipline has evolved to include ecohistories, historical geographic and ethnographies of landscape environmental history of a place that should be examined in conversion with anthropogenic development, only recently have college, town and campuses emerged which Gain (1991) describe the college campus as a work of art. His book valuation of merit and scholarship and also ranks college base on urban space, architectural

quantity, landscape and overall a peal.

Many authors have demonstrated the importance of developing histories, the significance of the college campus in an environmental history contexts and the importance of mapping. However only recently has digital mapping emerged as a reputable discipline (Lefebure H., 1991) production of space as times have progressed into a digital age, the ways in which authors addreses and presented environmental history, problem will continuously develop the discipline of environmental history, is also well recognized and accepted as an area of study. Blackwell Long Seth (2013), digital map and social data.

Old maps provide much information's about what was known in times, past and as well as the philosophy and cultural basis of the map which were often much different from modern cartography, maps are one means by which scientist distribute the ideas and pass them onto future generation during the 20th century, map becomes more abundant due to improvement in printing and photography that make production cheaper and easier, advances in mechanical devices such as the printing process, visualizing and analyzing spatially oriented data since GIS becomes commercially available in the 1980s. GIS product are now used in large number of applications that deal with data including social and emotional planning, marketing facilities management and resources assessment in its original guise, GIS is largely dealt with 2.D data that was mapped onto the earth's surface (Rhind, 1992).

However, it was recognized that in order to deal with volunteer spatial information or 3.D geometric from sub surface data, as GIS or a GSIS (Geo-scientific information system) was required and such system for example have now been developed for commercial purposes. During field data collection, GIS vector data in the form of points, lines and polygons are acquired at each GPS determined coordinate in 3D space, printing of data at the locations where observation of an out crop such as bending, colours, textures, foliation and lineation etc are stored as attributes by means of an input term on the PDA. Contracts between rock un its faults fold traces are stored as line vectors by following the structure in the field and acquiring 3.D coordinate that represent modes of the line. Areas occupied by different rock types are stored polygon vectors in similar ways. In addition to producing an accurate and efficient means of collecting field data, digital mapping techniques ope up new possibilities for quantifying many types of uncertainty associated with the mapping process and using rhis uncertainty to evaluate the validity of competing interpretation.

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Remote sensing has enabled modern cartographers of chart the depths, if the oceans of the frontiers of outer space. Higher solution satellites camera as located at attitude of several hundred kilometers can record details as small as few meters in and on the earth surface. Satellite such as those in the land sat series sweep the globe with continuous scans to provide detailed up to date map of nearly the entire earth. Street map as the name implies is a road map the primarily displays roads, road networks and points of interest. Such as hotels, banks, tourist, stress, schools and business outfit. Natural occurring features or topography of an area are not usually depicted to develop to date at all times to avoid misinformation hence making travelers not miss their ways while moving from one location to another (Nnam et al 2012).

Digital mapping: Concern the art and science of using digital technology, geographical data with, to include digital mediated process of collecting data and beyond that sharing data. Digital mapping may involve the production of maps, whether on a computer screen or displayed on a mobile device. Although they may or may not be ultimate product cost effective capturing makes this data for countries and cities more accessible.

Digital Mapping Surveying

A lot of mapping related organization still lace skills, technology and data to properly construct (GIS) data for mapping related purpose. This is especially true for the countries in

the developing parts of the world. This countries would mapping typically include most of African sections of the middle east and Asia, parts of the south American and Indonesia. This is also applicable to a large proportion of the Eastern block countries that were previously mapped in Russian federation but have not be maintained or updated in GIS vector formats. Although the developed world does not access to the best available technology and data, we believe that our approach to bulk GIS data capture is unique, and can be implemented a much large scale.

Digital mapping is the process by which a collected of data is complies and formatted into a virtual image. The primary function of this technology is to produce maps that give accurate representation of a particular area, detailing major road arteries and other points of interest.

Types of Digital Mapping

- Editable maps
- Static maps

Editable Maps: the file format for these is EPS and they can be edited with the right software like online at lease and geospatial data.

Static Maps: most maps on the interest are of this type.

Digital mapping is particularly useful for reaching and learning history because its usually remind student of the interaction between past and present. Digital map was invested by Dangermond digital map emerged. In 1960s with the census breads.

Dine Maps: These first digital map were used for analysis of places, specific data, such as pollution within census tracts systems (GIS) for spatial analysis.

Digital map can be created on a computer system by signing into maps, creating map, cricking the stop left "Untitled map" then giving the maps a name and description Digital surveying and mapping technology with the development of science and technology of our country, the digital industry has been widely used in various fields, and achieve good results. And in the engineering survey. This paper discuss the application of digital surveying and mapping technology in engineering surveying.

The advantage of Digital surveying and mapping technology with the development of the modern science and technology digital mapping appears and develops and is widely used in today's engineering surveying compared with the traditional surveying and mapping technology. Digital mapping technology has obvious Advantages. First compared with the

traditional/surveying and mapping technology. Digital mapping technology has various advantages. First compared with the traditional surveying and mapping technology. Digital mapping technology can be more vividly and accurate display the mapping object. At the same time, they obtain a data to be more accurate which allows tha staff in the process of surveying and mapping work. More time, surveying also work in prone to inaccurate data problems. Secondly, compared with the traditional surveying and mapping technology devices can obtain more accurate data information for the staff. At the same time, in the process of using surveying and mapping technology, we can automatically save three dimension coordinate and then collect relevant data, informations on the basis of collceting points again, this step reduces the amount of errors that is prone to errors in the acquisition process and we need to know after surveying and mapping data collected. The staff needs to calculate and analyze it for the people to calculate and analyze as well, but because people will be affected by a variety of factors. It is particularly prone.

Maps are easier to use and easier to carry around, digital map can be consulted for free, they are also sold at stores but still you can download them from the internet for free as well. Digital storage requires that they do not take up spaces and can be stored on electronic devices, digital map can also be updated with ease.

Disadvantages of digital surveying and mapping expenses required physical spaces, they cost money and require a lot of storage space. Extra care Required, if the map get wet, it will become readable and unstable. Digital mapping is also important in GIS because it essential for all work to be performed within a geographical information syst3m (GIS) in order to ensure that image and interpreted data sets maintain the same geographical coordinate system.

BENEFITS OF DIGITAL MAPPING

* Quick terrain calling, higher the accurate and absence of distortion, the ability to dynamically change the topography and location of various object, possibilities of transferring Digital maps via internet.

HOW TO USE DIGITAL MAP

* The beginning point, enter via GPS coordinate and the ending point, (address or coordinate), input by the user and then enter into digital mapping softwar4. The mapping software output is a real time visual representation of the route. The map then moves along the path of the driver.

i. Digital mapping has its ozn challenge which are as follows:

ii. Tax time consuming to build data map

iii. Incomplete information to build data map

iv. Impossible to keep data up to date

v. Not possible to build a comprehensive data map.

Given such diverse applications, digital maps are now used by many institutions both local and national government, research institutions, businesses and investors, planning offices might used digital maps to keep record of property boundaries and they could be used in market analysis where necessary to know location of customers, the distance they have to travel, the best places to advertise and location of competitors. The application area of digital maps requires a number of subject arrests to incorporate the teaching of spatial skills and data manipulation into their programs of study to assist graduates with carrier options.

WHY DO WEE NEED DIGITAL MAP AND WHAT CAN BE DONE WITH THEM

In order to appreciate the features of digital maps, it is helpful to think about paper maps and consider the kind of decision that cartography needs to make. These include (but are not limited for):

* The map scale

* Features of the area should be shown and how they should be symbolized or encoded.

* Whether symbols for features should be accompanied by text label and where to place them

* How to present different levels of a variable such as population density or heights above sea level

* How to generalize features such as roads or rivers whose every bend cannot be shown at a small scale that their general businesses is noted and important specifically noted.

The result is a fixed product and usually paper based, user of such a map can study and put any extra noted or detail on it but they cannot obtain any more information that is not so relevant for their needs or to make it easier to read. One's result of such one way communication is that a map is not the objective factual o object that many users take it to be because of the decisions that have had to be made in producing it.

Devices give a nice illustration of this (Davies, 1998) in discussing the visitors guide for the Open University where three of the authors of this paper are located. The open university is in Milton Keynes, a new design city in the U.k Milton Keynes is designed on a grid basis and many visitors find it harder to navigate around than in traditional cities because of the lack of traditional features that are found in older towns and cities. The visitors guide contains maps to help visitors to find the open university campus. The decision listed above are well illustrated in these maps. For example, the first map shown shows Milton Kegmes geographical location and it's apparent equidistant between London and Birmingham is emphasized (Suggesting easy access to both cities). Infact, Milton Keynes is considerably nearer to London

than Birmingham. Certain town and major roads are included for the purpose of navigation (but not that this is a selection). As in many such maps, Milton Keynes is made to cover s large area with other towns and cities represented by dots roads are represented by Holtens, motor ways with thicker lines and railways as symbolization. The second more detail map but again it illustrates the decisions that have been taken in drawing the maps. For example, while information conveyed in such a map in under the control of cartographer who chooses what to emphasize on or what to omit.