CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Digital mapping also known as digital cartography is the process by which collection of data is complied and formulated into a virtual image, the primary function of this technology is to produce maps that gives accurate representation of a particular area, detailing major roads, building and other points of interest.

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 dynamics and easily accessible maps.

Digital mapping is a cross disciplinary methodology with strong relevance to anyone whose research method is to investigate data and to answer research questions or as a publication output on both, many of the software tools and methods of digital mapping comes from geography are related to discipline but they are now used across in many different discipline in both. Hass and stem, map making is been part of Hass research from well before the advent of computational methods.

They have been petty common research and visualization tools in discipline like archaeology but in recent years, new tools and softwares have made it for more researcher to try their hands. Mapping is use as research methods for some reasons which imclude:

- To create a visualization of data connected to a place. All maps are abstract data visualization whether they show location, natural resources points of interest for tourists e.t.c. many of this would not be just from the experience of using goggle maps on our phone that a visualization of the area, we are in a different to follow than a series of water direction. The same is true for research data, often patterns and relations

- The process of practice of the method encourage, close looking, pattern and prompt inter-disciplinary

Digital mapping by definition is performed through some kind of digital interface, typically a computer system with a geographical user interface (GUI) which has been available for some consideration time.

It is also essential for all work to be performed within a geographical information system (GIS) in order to ensure that input imagery and interpreted data set maintain the same geographical coordinate system. This allows data export in geographical products and facilitates accurate map production into geographical and quantitative analysis and interpretes needs to be familiar with the operation and use of a GIS and familiarity with the text described. Remote sensing and image processing incluse long leg et al, (2006).

Primary input data sets used for digital geomorphologic mapping include satellites imagery. DEMS and Aerial photograph, this are typically raster data and just like ordinary digital photo to be comprised of unit of information defined by a real world area on the ground (termed spatial resolution). All recently collected data sets from these sorce will be digital and usually supplied in a projected coordinate system. Only in the case of historical or legacy data will be required to convert from paper based on analogue format into a digital format. This may include the scanning. For example, Aerial photography or the digitalization of controls from topographic maps.

This also allows data export into other geographic project and facilitates accurate production and use of GIS with the advancement in geographical technology, digital mapping has become a critical tools for the surveying and geo-informatics disciplines.

Traditional method of map creation are often labor intensive and prone too inaccurate while digital mapping ensure real data updates, higher precision and a variety of analytical capability. The

application of digital mapping is crucial in management, resources exploration and environmental studies.

1.2 Statement of the problem

The federal staff school Adewole, Ilorin, faces challenges. The lack of accurate up to date digital maps hinders effective planning, assets management. The manual out data leads to difficulties in locating facilities and ensuring timing maintenance of school infrastructure. The need of digital mapping is critical to address the challenges and also the school operations with modern technologies and advancement in educational facility management.

1.3 Aims of the project

The aim of the project is co carryout the digital mapping of federal staff school Adewole, kano road, Ilorin, Kwara State.

1.4 Objective of the project

i. To determine the perimeter and area of the project area/site.

ii. To show the position of the artificial features.

iii. To perform spatial analysis on the generated spatial data base to ensure it can answer generic questions.

1.5 Scope of the project

i. Planning

ii. Data processing

iii. Data collection, gathering of spatial data through total station.

iv. GIS mapping: development of interactive maps and spatial data layer using GIS software.

v. Analysis: using gem-spatial analysis tools to exact valuable insight from the data such as land use pattern environmental changes and infrastructure development.

vi. System implementation: developing a digital mapping platform accessible by relevant stakeholders within.

vii. Information presentation

viii. Report writing.

1.6 Specification of the project

Corner beacon will be buried at corner points:

i. A closed traverse will be carried out for field work.

ii. The area should not less than 5 hectares.

iii. The scale should not be more than 1:2,500.

iv. Linear accuracy should not be less than 1:5,000

v. Area computation will be done using latitude and longitude single departure.

vi. The distance between the pillars should not be more than 250m.

1.7 Project Location

The project area is federal staff school Adewole, Kano road, Ilorin, kwara state while covered the primary and secondary school on the geographical co-ordinate of Easting and Northing.

LAT: 4^0, 513^0E LONG: $8^0.4777^0$N

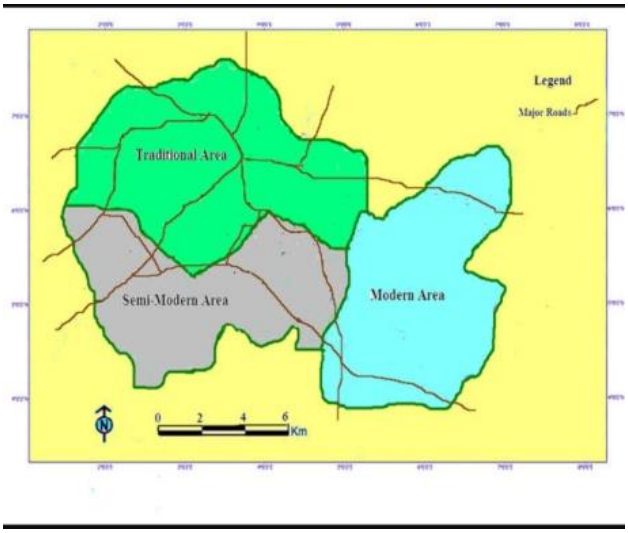
LAT: 4^0, 30” 47” LONG: 8^0, 28” 40”

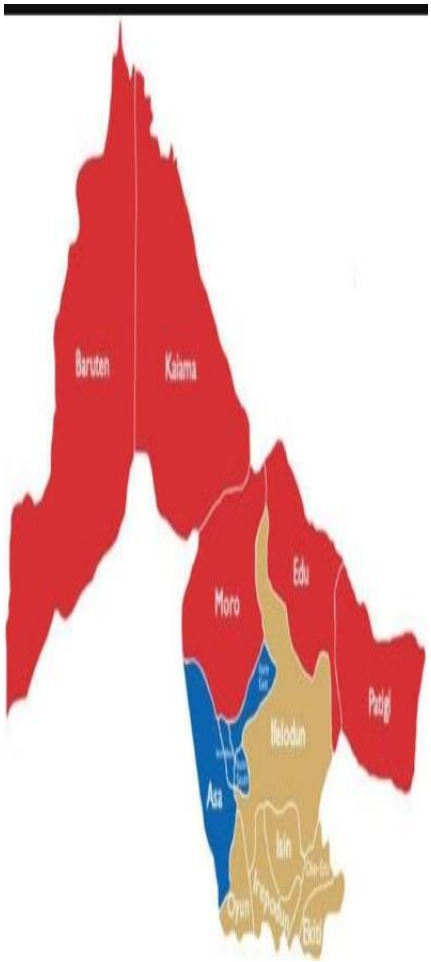
PARTICIPANT OF THE PROJECT

Showing the lists of the students involved:

S/N	NAME	MATRIC NUMBER	ROLE PLAYED
1	OSUNLEKE HABEEB OLAIDE	HND/22/SGI/FT/0052	AUTHOR
2	OJO ADEBISI MOTUNRAYO	HND/23/SGI/FT/0041	MEMBER
3	ADEBAYO BLESSING MARY	HND/23/SGI/FT/0042	MEMBER
4	DADA ELIZABETH OLUWAPELUMI	HND/23/SGI/FT/0043	MEMBER
5	OLADIMEJI RAPHAEL OLUWASEGUN	HND/23/SGI/FT/0045	MEMBER
6	IBITOYE JOSHUA AYOKUNLE	HND/23/SGI/FT/0047	MEMBER
7	AKINYEJO EZEKIEL DAMILOLA	HND/23/SGI/FT/0051	MEMBER


Sokoto
Katsina
Jigawa
Yobe
Borno
Kebbi
Zamfara
Kano
Kaduna
Bauchi
Gombe
Niger
Plateau
Adamawa
FCT Abuja
Kwara
Nasarawa
Oyo
Osun
Ekiti
Kogi
Taraba
Benue
Ogun
Ondo
Lagos
Edo
Enugu
Ebonyi
Anambra
Cross River
Delta
Imo
Abia
Akwa Ibom
Bayelsa
Rivers
Legend
North Central Region
North East Region
North West Region
South East Region
South South Region
South West Region


Legend
Major Roads
Traditional Area
Semi-Modern Area
Modern Area
0 2 4 6
Km


Baruten
Kaiama
Moro
Edu
Patigi
Asa
Ilorin
Oyun
Ekiti


98%
Federal Staff
Select starting point
3D
100 m

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 (Geo-scientific 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 eco-histories, 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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defined environmental history as history that seems understanding of human beings as they have lived, worked and thought on relationship to the rest nature through the changes brought by time (Huges, 2006). Although the discipline has evolved to include eco histories, historical geographies and ethnographies of landscape, environmental history of a place should be examined in conversation with anthropogenic, development, only recently, have College town and campus emerged as focuses for scholarship and even more recently have college town and campus as a significant entity emerged when gains (1991) describes the College campus as a work of art. His book valuation of merit and scholarship and Ranks College based on urban space architectural quality landscape and overall appeal.

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 typ.

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 o2n 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.

CHAPTER THREE

3.0 METHODOLOGY

Methodology refers to the techniques adopted in the execution of a particular project. The method used was carried out both in the office and on the field, and it was based on principle of survey, which is to work from whole to part in order to acquire a reliable and an accurate data needed and presentation of information, graphically or numerically to form a plan, map or chart.

3.1 RECONNAISSANCE

3.1.1 FIELD RECONAISSANCE

This is required of any survey work to be carried out. During reconnaissance, the purpose of the survey work, specification and required accuracy of the survey was closely examined as this will affect the choice of instrument and also the method of survey to be used.

The study area was visited and a sketch diagram of the site was drawn to show the view of the project site, which is known as the RECCE DIAGRAM of the site.

RECCI DIAGRAM NOT DRAWN TO SCALE

3.1.2 OFFICE RECONNAISSANCE

This involves inspecting of the existing topographic map of the area to be surveyed (if there is any) and planning on how to carry out the project. It also involves the compilation of information obtained around the area of study i.e control points coordinate, selection of instrument, method to be used e.t.c. this also involves obtaining of necessary information that could enhance the overall outcome of the job.

CONTROL COORDINATES

A table showing the control points used for the execution of the project

Tables 3.0 Shows the Coordinate of Control

S/N	CONTROL POINT	EASTING	NORTHING
1.			
2.			
3.			

3.2 INSTRUMENT SELECTION

The below listed instruments were used for the execution of the project

3.2.1 HARDWARE

i. it accessories

ii. Linear tape

iv. Field book

v. Nails and cork

viii. Hammer

3.2.2 SOFTWARE

i. Civilcad 2012

ii. AutoCAD

iii. T.S link

iv. Microsoft excel

vi. Notepad

3.3 INSTRUMENT TEST

The efficiency and reliability of the instrument was tested before using it for data capturing. The test was carried out for both vertical, index and horizontal columniation error. It is a great importance to test the instrument of conform that it is still in good and working condition. However, an elaborate test was done on the instrument i.e columniation test.

Test for horizontal columniation and vertical index error were carried out. These were done just to make the horizontal axes of the instrument to be truly horizontal and its vertical axis to be truly vertical and perpendicular to the horizontal axis.

The procedure involved as follow.

The instrument was set on control point and all temporary adjustment were performed (centering, leveling and focusing), the reflector was taken to other control point and we bisect the centre of the prism on facelift and the appropriate buttons were pressed to take the horizontal and vertical readings on face left and the instrument was honed to right, the procedures were repeated and the readings Were taken of displayed both the horizontal columniation and vertical index errors and we compared the result with the previous values and stored it in the memory as the correction for the subsequent reading.

TABLE 3.1: READING OBTAINED DURING THE TEST OF INSTRUMENT

COLLIMINATION ERROR	HORIZONTAL	VERTICAL
PREVIOUS COLLIMINATION ERROR	$00^{0}00^{1}03^{11}$	$00^{0}\ 00^{1}\ 02^{11}$
NEW COLLIMINATION ERROR	$00^{0}00^{1}03^{11}$	$00^{0}\ 00^{1}\ 03^{11}$

3.4 CONTROL CHECK

This involves checking the control to be used for the execution of the project to know if they are in good condition. There is need to check control point, because there is no survey job done on vocation, therefore, any error with these control point will be introduced to the new job and as a result of this, the accuracy of the latter job will be affected.

In the course of this project, the instrument was set on a control point which we established and all the necessary temporary adjustment was done, then back sight was sighted to another control point which was also established also to serve as the orientation point.

TABLE 3.2: CONTROL CHECK

CONTROL POINT	OBSERVATION	COORDINATE OF E	COORDINATE OF N
	Given coordinate Observed coordinate Difference	677577.147 677577.148 +0.001	945766.878 945766.877 -0.001
	Given coordinate observed coordinate Difference	677785.462 677785.461 -0.001	945767.856 945767.858 +0.002
	Given coordinate observed coordinate Difference	677400.149 677400.152 +0.003	945766.209 945766.207 -0.002

3.5 MONUMENTATION

Monumentation is a process of property beacon emplacement on the ground at each corner of the boundary of the perimeter and being capped accordingly with a specific prefix and suffix, accordingly to CAD 194 of federal Republic of Nigeria on survey rules and regulations. And this was done accordingly in the case of this project before the traversing was done.

3.6 DATA ACQUISITION

Data acquisition can be using various methods generally the extent of the area and material involved will greatly influence the determination of the method of data acquisition. The most economical and faster method for a very large area is Photogrammetric and remote sensing techniques. But for the course of the study area the fundamental land surveying techniques used for the data acquisition was the RADIATION method, because total station and its accessories were used for the data acquisition (coordination of points).

During the data acquisition, the total station instrument was been mounted on a tripod and it leveled by operating the leveling screw, within a small range, instrument is capable of adjusting itself to the level position. When the target is sighted horizontal and vertical angles as well as slope distances were measured and by pressing the appropriate keys, they were recorded along with point number. Height of instrument and targets were keyed in after measuring them with tapes, the processor compute the various information about the point and displays on screen

This information is stored in the electronic book. At the end of the field work or data acquisition, the information stored was downloaded to the computer.

3.8 DETAILING AND SPOT HEIGHT

3.8.1 DETAILING

In property survey, one often encounter the case where the details within and around the property itself. In such cases, details are defined as immovable features like roads or permanent utilities e.g wire lines etc. natural features like stream, rivers, ponds, hill and economic trees or swamps are also important to topographic details. In both property survey and topographic survey, details are represented by conventional signs in graphical form and survey plans or maps.

In the course of this project, total station was used for picking details. The choice of methods for topographic surveying is governed by.

1. Intended use of the map: surveys for detailed maps should be made by more refined method than surveys for maps of general characters.
2. Area of tract: it is more difficult to maintain a desired precision in the relative location of over a small area.
3. Scale of map: because of the range of uses of topographic maps and because of the variation in character of the area covered, topographic survey varies widely in character.
4. Contour interval: the smaller the contour, the more refined should be the field methods.

3.8.2 SPOT HEIGHTING

The spot heightens was done of the project site with the total station, which was to determine the differences between ground levels of the project site. The spot height of the project site was taken at random to determine the levels of each point of the ground.

3.8.3 METHOD OF FIXING DETAILS

Radiation method was used for the fixing of details with the use of total station in the project area. The instrument was been set upon a coordinated point in which the features were visible and could be easily picked and the instrument was back-sighted to the other coordinated point which serve as orientation point, then the reflector was been placed at the edges of the features such as buildings, electric poles, trees and so-on to be picked during the course of work on the project area.

3.9 CONTOURING

Contour line is an imaginary line that joins points of equal attitudes or heights on the earth's surface. Contour interval is known as the difference on height of two successive contours.

Contouring was been carried out to join two points of equal elevation of the project area. Total station been the instrument used for our data acquisition, it is capable of capturing the easting and nothing as well as the height of points on the surface of the earth. The total station was used for the determination of the height of different points, what enable the contouring of the projects site i.e. to join two points of equal height together and to also show the shape of the nature of the terrain and also the steepness of the slops in the project area.

3.10 DOWNLOADING OF DATA

This is the transfer of data from the memory unit of the instrument into the computer for processing the total station was connected to the computer through a data transfer cable using the T.S link processing software for the downloading.

3.11 DATA EDITING

The data download into the computer system from the instrument memory unit was copied to excel for editing. This process involves the removed of unwanted values from the data downloaded like the punctuation marks (comma, semi-colon), slope height in order to avoid error in data processing.

3.12 DATA PROCESSING

This aspect involves the mathematical calculations, which entails the commotional procedures carried out on raw data collected from the field in order to determine location direction, height, distance area etc. these were used in producing the finished product known as plan/charts and it is usually done in the office, it is called office computation.

3.12.1 DATA PROCESSING IN CIVILCAD 2012

After the coordinate has been edited and arrange in Microsoft excel as easting, northing and height and then save as CSS formatter. Then surfer a software was lunch for generation of contour and then click on grid on a tools bar and select data then a dialog box will appear to locate where the data has been save to then select that data and click open dialog box will appear then click on each data column so that to check whether it's been arranged correctly, and then select bringing for gridding method then okay. Surfer will do the analysis of that coordinate value and create grid, there after click maps on tools bar select new and then click on contour map, it will locate you where that grid has been created, then select that grid and open it. Then contour line will displays, to export it AUTOCAD format, click fil on tools bar, select import and the dialog box will display, give that file a name on file name and save as type select DXF AUTOCAD DXF drawing.`

3.12.2 DATA PROCESSING IN AUTOCAD

After contour have been done by the surfer and been export to AUTOCAD was lunch there after click on file or tool bar, select open the dialog box will appear to locate where the export surfer file is, then click on the file and open, press z enter and E enter do display that contour on AUTOCAD environment. There after unit been set then pick poly-line enter the coordinate value one after the other as easting, northing. For boundary and press Z enters, E enters. Some procedure was used for fixing details.