A PRODUCTION OF GRAPHIC LIGHTING SYSTEM FOR THE ENTRANCE TO THE UNIVERSITY OF BENIN, BENIN CITY

BY

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A PROJECTWRITTEN AND PRESENTED TO THE DEPARTMENT OF FINE AND APPLIED ARTS, FACULTY OF ENVIRONMENTAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF FINE ARTS (MFA) IN ADVERTISING

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CERTIFICATION

We the undersigned certify that this work was carried out by Adeyemi Oluwafemi Alaba with Matriculation Number PG/ART 1918150 in the Department of Fine and Applied Arts, Faculty of Arts, University of Benin, Benin City, Edo State, Nigeria

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Head of Department

DEDICATION

This research work is dedicated to God Almighty, my source for living, the beginning and the ending. To Him belongs all glory and adoration. Amen!

ACKNOWLEDGMENTS

Deep and intense gratitude to the Triune God for unceasing love and mercy and His ultimate intervention leading to the successful completion of this academic programme, unto Him be the glory and praise forever.

Heartfelt gratitude goes to my supervisor, Professor John Ogene who wholeheartedly and meticulously supervised this project throughout the course of the study in scholarly direction.

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Many thanks to my course mates for their encouragements all the time and finally I must express gratitude to my wife and children for their unfailing love, encouragements and immense support from the home front.

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ABSTRACT

Graphic lighting systems has become a topic of interest in urban planning and design due to its potential benefits, including improved emergency response, better navigation, increased property values, and enhanced security. However, despite these potential benefits, there is limited research on the implementation and effectiveness of graphic lighting system in the University of Benin, and many questions and concerns remain about their use. However, the aim of this study is to examine the implementation and effectiveness of graphic lighting system for the entrance to the University of Benin, Benin City, Edo State, Nigeria. The research also brings to light the challenges and obstacles associated with implementing graphic lighting system in the University of Benin. The study established the effectiveness of graphic lighting system in improving emergency response, navigation, property values, record keeping, and security, its explore the perception of residents and visitors on the use of graphic lighting system in the University of Benin. The researcher investigates the cost-effectiveness of using graphic lighting system in the University of Benin and to explore the best practices for using graphic lighting system in the university.

The study employed the use of mixed methods approach within the case study method. The mixed method approach offers the opportunity to investigate and understand the dynamics of a particular system. With this approach, the researcher explores a single entity or phenomenon (the case) bounded by time and activity and collects detailed information using a primary and secondary mode of data collection procedure during a sustained period of time. The study adopted the use of both purposive and simple random sampling techniques.

The study shows that graphic lighting system has a rich history that differs from one region to another and the introduction of graphic lighting system in the University of Benin is a recent and welcomed development. It was recommended that since the use of graphic lighting system in the University of Benin has greatly enhance the aesthetics of the locality, residents and service providers should make use of graphic lighting system so as to make easy accessibility to locations for this will improve prompt service delivery and response in times of emergency. It was also recommended that other properties owners should embrace the graphic lighting system so as to give their property a higher value as prospective buyers or others that will consider such properties more desirable due to the fact that it will be easy in locating them. It is also important that creating awareness and educating citizens about its significance in the graphic lighting system.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Graphic Lighting System (GLS) has a rich history that varies from region to region, and the introduction of graphic lighting system in the University of Benin is a relatively recent development. Graphic lighting system has evolved over the centuries, reflecting changes in urban development, administrative needs, and technological advancements. Ancient Rome has been identified as the concept origin of what we know today as misnomer called "Domus" or "Insula" numbering, where buildings on streets were assigned sequential numbers while the Medieval European cities were often characterised by inconsistency and irregularities with buildings marked with landmarks or business signs rather than numeric addresses.

Modern numbering systems began to emerge in Europe in the 18th century, driven by the need for more efficient postal services and city planning. According to Cohen (2006:48), Paris introduced a street lighting system in 1805 and by the 19th century, misnomer had become standardized with the adoption of the numeric or alphanumeric system which continued to evolve through the 20th century with the widespread adoption of postal codes and more advanced mapping and aesthetic technologies.

In Africa, there are diverse history of graphic lighting systems due to its varied cultural and colonial influences. The introduction of graphic lighting systems by European colonial powers in some African countries during the colonial period to facilitate administration and postal services even though this practice varied widely from one region to another (Anderson, 2002). Moyo (2011:17) states that after gaining independence, many African countries continued to use or modify the graphic

lighting systems introduced during the colonial era while some urban areas developed their own systems.

The Nigeria's graphic lighting system history is closely tied to its colonial and post-independence development. According to Adams (1995), Nigeria, under British colonial rule, adopted lighting systems in urban areas like Lagos and major trading centres which were introduced primarily for administrative purposes. Okonkwo (2018) informed that after gaining independence in 1960, Nigeria continued to use and expand upon the existing numbering systems with various cities and states developing their own approaches to lighting system.

The advent of digital technology and computerized systems allows graphic (often Arabic numerals) to start replacing traditional hand-painted or carved numbers. This shift allowed for more standardized and visually consistent signage. The use of graphic lighting system became even more rampant with the rise of digital mapping and GPS technologies which rely heavily on numeric addresses and graphical representations for precise location identification (Johnson, 2015). According to Brown (2021), graphic lighting system of the University of Benin also offers the advantage of customization and aesthetics thereby allowing the university and other interested businesses owners to choose fonts, styles, and materials that suit their preferences.

In summary, graphic lighting system has evolved from ancient Rome to modern digital systems, with unique developments in Africa and Nigeria shaped by colonial legacies and post-independence initiatives. The adoption of graphic digits in numbering reflects technological progress and the increasing importance of standardized for efficient urban planning and postal services. The introduction of

graphic lighting system in the University of Benin is a more recent development, influenced by technological advancements.

However, in the heart of Edo State, Nigeria, lies the University of Benin symbolic of Nigeria's rapid standardization and evolving urban management challenges. Within this landscape, the implementation of an effective numbering system has emerged as a pivotal urban infrastructure challenge.

The rapid urbanization and population growth in Nigeria have led to the emergence of several challenges in urban planning and management, including effective graphic lighting systems. In University of Benin, the absence of a standardized and effective graphic lighting system has posed significant challenges for both residents and local authorities. This deficiency has resulted in difficulties for residents in locating specific addresses, hindering the efficient delivery of government services, and the overall urban development and management of the area. It is important to reiterate that this issue is not unique to University of Benin alone but rather a common problem faced by many Nigerian communities due to the unorganised and dynamic nature of urbanization in the country (Dauda, 2016).

Figure 1: Traditional Graphic Aesthetic

Photo: Adeyemi Alaba, 2025

1.2 Statement of the Problem

The recent increase in security challenges, delayed emergency response time, poor navigation, aesthetics and limitations in 21st-century urban planning and designs among other challenges due to poor graphic lighting has marred against reaping the appropriate dividends characterised with urban development in other locations across the globe. It is therefore important to adopt the use of Graphics lighting system in University of Benin in other to tap into the immense benefits it offers in a production of graphic lighting system for the entrance to the University of Benin.

1.3 Research Questions

The study addressed the following questions:

1. How can Graphic lighting system be developed and implemented using the University of Benin, Benin City?
2. How effective are graphic digits in improving emergency response, navigation, property values, aesthetics, and security?
3. What is the perception of residents and visitors on the use of graphic lighting system in the University of Benin?
4. What is the cost-effectiveness of using graphic lighting systems in University of Benin?
5. What are the best practices for using graphic lighting system in the University of Benin?

1.4 Aim and Objectives of the Study

This research aims to address this issue through the introduction of a Graphic Lighting System (GLS), specifically tailored to the unique needs and circumstances of the University of Benin.

This research also achieved the following objectives:

1. To develop and implement Graphic lighting system in the University of Benin, Benin City;
2. To create an effective graphic lighting system in improving emergency response, navigation, aesthetics, and security in the University.
3. To create perception for residents and visitors on the use of graphic lighting system in the University of Benin
4. That the graphic lighting system is cost-effective; and
5. To show the best practices for using graphic lighting system in the University of Benin.

1.5 Significance of the Study

The study is significant because the use of graphic lighting systems has become a topic of interest in urban planning and design due to its potential benefits, including improved emergency response, better navigation, increased property values, and enhanced security. However, despite these potential benefits, there is limited research on the implementation and effectiveness of graphic lighting system in the University of Benin, and many questions and concerns remain about their use.

Foremost among the significance of this study is the enhancement of emergency response as corroborated by Vuolteenaho & Berg (2017) since it is a common knowledge that in crisis situations, time is of the essence, demanding swift

and precise location identification for emergency services such as fire departments, ambulances, and law agents. Graphic lighting system in the University of Benin will play a pivotal role in ensuring these crucial services reach their destinations swiftly.

The study is also significant because it lightings up the environment in the University of Benin and it contributes to improved navigation, since a well-organized lighting system will facilitates efficient movement within the university benefiting not only residents but also visitors and delivery services. The geographical position of the University of Benin as the gateway between the Edo State as well as a link and alternative route which creates high traffic to the area makes a graphic lighting system a pertinent visual beacon, allowing drivers to locate addresses with ease.

Furthermore, beyond immediate practical benefits, the implementation of graphic lighting systems has elevated the perceived sight of the University of Benin since it is of common knowledge that a clear and orderly lighting system conveys an image of organization and maintenance, drawing the attention of visitors and passer-by, thereby.

From an academic standpoint, research on GLS implementation in the University of Benin has contributed to the broader field of urban planning and management in Edo state and Nigeria at large. This study has therefore serves as a case study for researchers and policymakers seeking to address similar challenges in other regions of Nigeria or in different parts of the world. In addition, academic study in understanding the correlation between graphic lighting systems and property values from a local government perspective is another importance.

Also, the adoption of graphic lighting system in the University of Benin has contributed to improved record and data keeping which is currently a major challenge in the country, thereby simplifying data management processes for all stakeholders

including government agencies, utility companies etcetera with accurate records that can reduced errors, confusion and estimated data, facilitating smoother service provision. Graphic lighting system has also bolster security by making it easier for campus security personnel to identify and locate specific properties swiftly and accurately for effective policing.

The implementation of a GLS has the potential to bring about significant improvements in several areas of urban navigation within University of Benin among which is enhancing the efficiency of emergency services by enabling quicker response times, a solution supported by Smith (2018). Accurate graphic lighting system will also streamline the delivery of mail services, reducing errors and ensuring that residents receive important documents and packages promptly as well as a more effective urban identification of private and public building, ensuring that resources are allocated efficiently for infrastructural development as opined by Makinde (2017) and Iwuagwu (2019).

This is particularly important in higher institutions like University of Benin, where the allocation of resources should align with the changing needs of the community. The significance of this challenge extends well beyond the local context, as graphic lighting system, specifically employing lighting system, has gained traction in various countries in the world including Nigeria, United States of America, United Kingdom, et cetera (Omolaja, 2021). Graphic digits system, characterized by their clear, large, and easily decipherable format, present numerous advantages over traditional alphabetic characters, rendering them an indispensable tool for tackling urbanization-related challenges.

In conclusion, the researcher believes that the incorporation of graphic lighting systems is a crucial tool for the advancement of University of Benin as well as other

areas, cities or states. With the promise of improved emergency response, efficient navigation, increased property values, enhanced record keeping, heightened security and so on, it is evident that graphic lighting system offer distinct advantages over traditional alphabetic characters.

Figure 2: A Traditional Graphic Aesthetic in the University of Benin

Photo: Adeyemi Alaba, 2025

1.6 Scope and Delimitation of the Study

The scope of this research is focused on the implementation and effectiveness of graphic light systems in the University of Benin of Edo State in Nigeria. The effectiveness, user perception and cost-effectiveness of graphic lighting system for improved emergency response, navigation, property values, record keeping, and security in the University of Benin was also assessed.

Figure 3: Digital Graphic Aesthetic

Photo: Adeyemi Alaba, 2025

The scope of the study is limited to the University of Benin, Benin City, Nigeria, and the findings may not be generalizable to other regions or countries. However, the study has contributed to the conduciveness of acquiring knowledge on the implementation and effectiveness of graphic lighting system in the University of Benin.

1.7 Operational Definition of Terms

GLS: Graphic Lighting System

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with the Literature Review of this study and the review was carried out under the following subheadings:

- Conceptual Framework
- Graphic Digits
- Types of Graphic Digit
- Urbanization and Urban Management Challenges in SSA Countries

2.1 Conceptual Framework

The conceptual framework for this study is constructed around the intersection of design thinking as a problem-solving approach and systems thinking that recognizes campus signage as both a visual communication tool and functional infrastructure. This framework centers on the interaction between graphic design principles, environmental sustainability, digital integration, and social impact, creating innovative solutions in visual communication design.

A literature review of graphic lighting system in the University of Benin would examine the various approaches, techniques, and technologies used for designing and implementing graphic lighting systems that use graphic digits. The review was aimed to provide an overview of the current state of the field and identify trends, best practices, and gaps in the existing research.

The review would start by defining the concept of graphic lighting system and their role in the University of Benin. It would then explore the historical development of graphic lighting systems and how they have evolved over time, with a focus on the increasing use of graphic lighting in modern systems. The review would also examine

the different types of graphic lighting system used in the University of Benin, including their shapes, colors, materials, and placement. It would explore the advantages and disadvantages of different approaches, such as the use of LED displays versus traditional signs. The literature review would then examine case studies and examples of existing graphic lighting systems that use graphic lighting, both in residential and commercial contexts. It would analyze their effectiveness, user experience, and overall impact on safety and navigation.

Finally, the review would identify gaps in the existing research and suggest areas for further study, such as the impact of new technologies like augmented reality on numbering systems, the use of data analytics to improve the effectiveness of graphic lighting system, and the importance of accessibility and inclusivity in designing these systems.

2.2 Graphic Digits

Graphic digits are basically visual elements used to convey messages or represent ideas in graphic like logos, icons, typography and images. Graphic digits are designed to indicate the direction of a location or property in relation to a specific reference point, such as a street or intersection. These are often used to provide information and support effective navigation and orientation in the university community. Graphic digits can be used in numbering systems, it can serve a different purpose and provide unique benefits. Whether used to identify and locate buildings, it provide support for effective navigation and orientation, or reinforce brand identity, graphic digits are an effective and versatile tool for supporting urban development and enhancing the overall quality of life in university.

2.3 Types of Graphic Digit

Graphic digits are a unique and effective tool for identifying and locating buildings and properties. There are several different types of graphic digits, each of which serves a different purpose and provides unique benefits. Some of the most common types of graphic digits and their uses in numbering systems are discussed below.

2.3.1 Standard Digit

One of the most basic types of graphic digits is the standard digit. Standard digits are simple, numerical symbols that are used to identify and locate buildings and properties. These symbols are typically made from durable materials, such as metal or plastic, and can be designed to withstand exposure to the elements and other environmental factors. Standard digits are commonly used in numbering systems and are easily recognizable, even from a distance.

Figure 4: Metal Traditional Aesthetic Graphic

Photo: Adeyemi Alaba, 2025

2.3.2 Letter Digit

Another type of graphic lighting is the letter digit. Letter digits are similar to standard digits, but they include letters as well as numbers. These symbols are used to provide additional information about the building or property being identified, such as the street name or block number. Letter digits are particularly useful in urban areas where buildings and properties are organized into street addresses, as they can help to quickly and easily locate specific buildings or properties.

Figure 5: Metal-Plastic Traditional Graphic Aesthetic

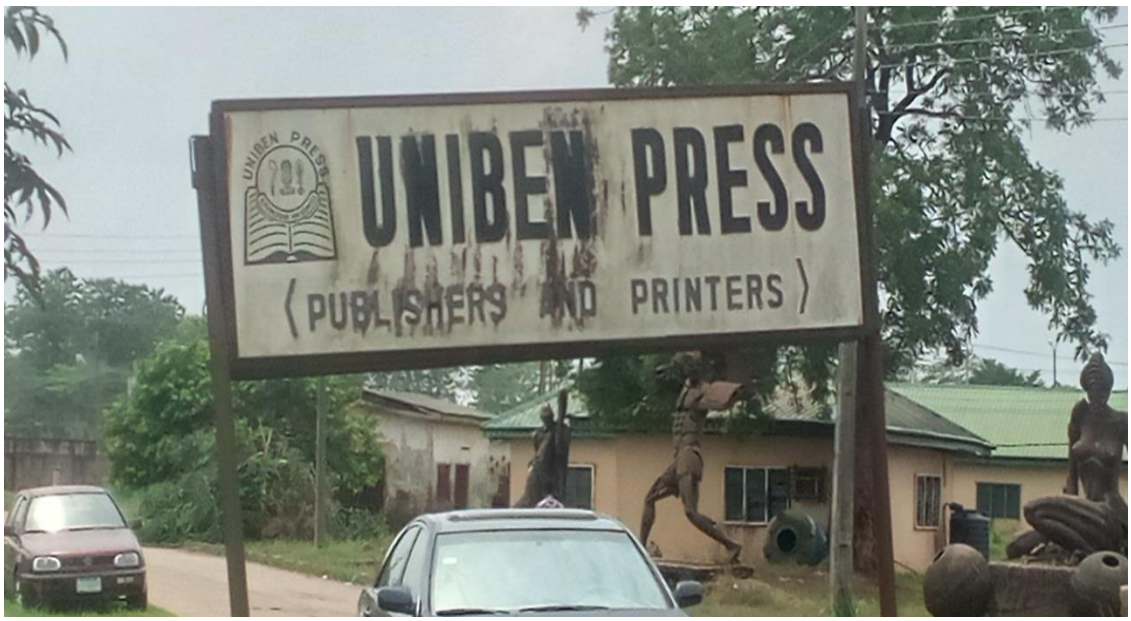


Photo: Adeyemi Alaba, 2025

2.3.3 Colour-Coded Digit

Another type of graphic digit is the colour-coded digit. Colour-coded digits are designed to be easily recognizable, even from a distance, by using different colours to identify different buildings or properties. For example, different buildings or properties on the same street may be assigned different colours, making it easy for people to quickly and easily locate specific buildings or properties. Colour-coded

digits are often used in conjunction with other types of graphic digits, such as standard or letter digits, to provide additional information and support effective navigation and orientation in urban areas.

Figure 6: Iron Traditional Graphic Aesthetic

Photo: Adeyemi Alaba, 2025

2.3.4 Directional Digit

Another type of graphic digit is the directional digit. Directional digits are designed to indicate the direction of a building or property in relation to a specific reference point, such as a street or intersection. These symbols are often used in conjunction with other types of graphic digits, such as standard or letter digits, to provide additional information and support effective navigation and orientation in urban areas. Directional digits are particularly useful in large urban areas, where it

may be difficult to locate specific buildings or properties without additional information.

Figure 7: Directional Graphic Aesthetic

Photo: Adeyemi Alaba, 2025

2.3.5 Custom Graphic Digits

Finally, there are also custom graphic digits, which are designed to meet the specific needs and requirements of individual buildings and properties. Custom graphic digits can be designed to include specific images, logos, or other visual elements that are unique to the building or property being identified. These symbols are particularly useful for buildings or properties that have a strong brand identity, as they can help to reinforce this identity and make the building or property more easily recognizable and memorable.

There are several different types of graphic digits that can be used in numbering systems, each of which serve a different purpose and provide unique benefits. Whether used to identify and locate buildings and properties, provide additional information, support effective navigation and orientation, or reinforce brand identity, graphic digits are an effective and versatile tool for supporting urban development and enhancing the overall quality of life in urban areas. By selecting the appropriate type of graphic digit for their specific needs, individuals and organizations can help to ensure that their buildings and properties are easily identifiable and locatable, even in complex urban environments. The digital lighting system cannot be overemphasised as its aesthetic values are listed as follows:

Support to Urban Residents and Visitors: A standardized digital lighting systems makes urban areas more “user friendly” through enhancing the system of street coordinates which makes it easier for people to find their way around cities and towns. This helps in the delivery of health, fire and security services in times of emergencies especially in informal settlements as well as facilitates the easy location of critical facilities in towns and cities (Coetzee and Cooper, 2007; Njoh, 2010;Zandbergen, 2008; and Yildirim et al, 2013). It also facilitates the operation of modern devices such as the Global Positioning System (GPS) and other location-based services and applications such as Google Maps, Bing Maps, Open Street Maps, etc. which enhance navigation within the built environment.

Support to Local Government Authorities: An efficient and standardized digital lighting system is also a tool for planning and managing urban services by making it possible for local government agencies to identify and monitor population trends and

public assets with regards to their number, and condition to facilitate urban planning and programming of investments and management. It plays a key role in the development of urban management tools (Farvaque-Vitkovic et al, 2005), the creation of an address database for population and housing censuses, facilities management and for investment programming.

Support to Utility and Service Providers: An efficient digital lighting systems also enables the private sector and utility providers such as water, electricity and telecommunications companies to provide targeted services to clients as well as track their locations for relevant follow-ups and maintenance of infrastructure and business transactions (Farvacque-Vitkovic et al, 2005; Coetzee and Cooper, 2007; Zandbergen, 2008; and Yildirim et al, 2013).

The need for a functional street and property identification system in Sub-Saharan African countries has been intensified in recent years by the globalization phenomenon. Globalization refers to the worldwide processes of interaction and integration among people, companies, and governments of different nations that have deepened since the late 1980s, driven in part by the international trade and investment and aided by information and communication technology that make the world more integrated and therefore interdependent (Murphy and Carmody, 2015cited in Carmody and Owusu, 2016).

Cities are not isolated entities and their success is closely linked to their physical connectivity with domestic and international markets. An adequate supply of better infrastructure, including address infrastructure, allows better and more efficient exchange within and between cities and countries. By facilitating navigation of the built environment, a street address system has the potential of increasing the

efficiency and functioning of cities in Sub-Saharan Africa (SSA) countries as well as transforming the economy of African countries into a modern and globally competitive one (Njoh, 2010; Bigon and Njoh, 2013).

Furthermore, the advancement in technology especially with the use of the Global Positioning System (GPS) as well as other location-based services and applications, online transactions, e-commerce and many other systems that have become widespread as a result of constant communication and interactions among people, companies, and countries underscore the importance of a functional address system in modern times. Moreover, investment in address infrastructure benefits international trade by improving identification of delivery points. Transportation and logistics companies affiliated with mail delivery and address maintenance comprise a large business, and address infrastructure allows these companies to become more efficient through adoption of improved parcel-tracking utilities, which improve customer satisfaction and ensure better delivery of items. Efficient logistics firms use track and -trace systems to monitor export and import shipments between countries. The quality of logistics is strongly related to the availability of street addresses. By facilitating the movement of goods around the globe, address infrastructure becomes an essential element of world trading systems.

2.4 Urbanization and Urban Management Challenges in Sub-Saharan African (SSA) Countries

Rapid urbanization in Africa has increased the need for an efficient digital lighting systems. According to the world urbanization prospects (the 2014 revision), 54 per cent of the world's population now reside in urban areas. The urban population of the world has grown rapidly since 1950, from 746 million to 3.9 billion. This

increasing population growth and the rate of urbanization are projected to add 2.5 billion to the world's population by 2050. Africa and Asia which currently have about 90 percent of the world's population are expected to contribute enormously to this global increase. A number of studies (Freire et al., 2014; Potts, 2015; Carmody and Owusu, 2016; Cobbinah and Niminga, 2016) have been conducted to ascertain the impacts of rapid urbanization on Africa's urban environment. Most of these studies indicate that although, urbanization has the potential to stimulate socio-economic development due to the fact that cities serve as administrative, commercial, and growth centers, its adverse effects are worth noting.

Many (Farvacque Vitkovic et al, 2005; Freire et al, 2014; Cobbinah and Niminga, 2016) argue that urbanization is one of the contributory factors to poor urban management and the proliferation of informal settlements in most urban areas in Africa. According to Shah (2012), about 32 per cent of the world's urban population live in slums and this percentage is much higher (37 percent) for developing countries and highest in Sub-Saharan Africa, at 62percent. Slum and informal settlement proliferation accounts for almost all the current urban spatial growth in some of the fast-growing African cities. For example, in Kenya, about a quarter of the total population in Nairobi live in slums. These areas house the urban poor, who are excluded from basic services such as water and sanitation, electricity and other infrastructure.

Poverty, deprivation, crime, and general human insecurity have become more widespread in many African cities, especially in the slums. From the foregoing, the challenge for most Sub-Saharan Africa (SSA) countries lies in their ability to maximize and harness the benefits of the urbanization process towards socio-economic development amid rapid globalization.

CHAPTER THREE

METHODOLOGY

This chapter focuses on the materials, tools, equipment and method used in carrying out the study. The chapter provides a discussion on how the study was conducted to answer the research questions.

3.1 Design of the Study

The adoption of a studio-based exploratory design is necessitated by the practical and creative demands of this study, which centers on designing, constructing, and installing new navigation signages at the University of Benin. Studio practice allows for hands-on experimentation, iterative prototyping, and material testing which are key requirements for translating theoretical knowledge into tangible design outcomes. Unlike purely theoretical approaches, this method emphasizes active problem solving, enabling the researcher to investigate alternatives, respond to unforeseen challenges, and refine solutions through predictive and unpredictive outcomes.

The study employed the use of mixed methods approach within the case study area. The case study approach offers the opportunity to investigate and understand the dynamics of a particular system (Pirola et al., 2020). In other words, it provides an intensive study of an individual unit or community stressing development factors in relation to the unit's own environment. With this approach, the researcher explores a single entity or phenomenon (the case) bounded by time and activity and collects detailed information using a primary and secondary mode of data collection procedure during a sustained period of time (Asenahabi, 2019).

The reason for the adoption of this method stem from the fact that, the study requires multiple data sources of evidence and also, the issue being investigated is a contemporary phenomenon which is ongoing and for which the researcher has little control over. Again, the case study method is appropriate for this study because it is mainly suitable for research seeking to answer “how” and “why” questions (Yin, 2003; Baskarada, 2014) which are relevant for providing answers to the research questions in this study. Moreover, it is important to mention that both the exploratory and descriptive reseach to case study research were adopted.

3.2 Study Location

The University of Benin Nigeria is one of the leading federal research universities in Nigeria. It is widely identified as UNIBEN and is located in Benin City, Edo State Nigeria. This great university was founded in 1970, and it is among the first generation of federal Universities. The school currently has two campuses with fifteen faculties including a central library called the John Harris Library. University of Benin also awards higher education degrees like post-doctorate degrees, doctorate degrees, master’s degrees, and bachelor’s degrees.

The University of Benin initially started as an Institute of Technology, and on July 1, 1971, it’s status as a university after being acknowledged by the National Universities Commission (NUC). In April 1972, the school changed its name from the Institute of Technology to the University of Benin. This switch was announced by Samuel Ogbemudia, who was the Military Governor of Mid-Western State. Also, during that year, a new program in eye care, called optometry, commenced in the Faculty of Science. This program was overseen by Paul Ogbuehi in the Department of

Physics. It officially became a federal government-owned University on the 1st of April, 1975, In line with the request of the State government.

Faculties at the University of Benin

- Faculty of Agriculture (AGR)
- Faculty of Arts (ART)
- School of Basic Medical Sciences (BMS)
- CBT Practice Categories (CBT)
- Centre for Entrepreneurship Development (CED)
- Centre of Excellence in Reproductive Health Innovation (CERHI)
- Centre for Forensic Programmes and DNA Studies (CFPDS)
- Faculty of Dentistry (DEN)
- Faculty of Education (EDU)
- Faculty of Engineering (ENG)
- Faculty of Environmental Sciences (ENV)
- French Language Centre (FLC)
- Office for General Studies (GST)
- Institute of Child Health (ICH)
- Institute of Education (INE)
- Institute of Public Administration and Extension Services (INP)
- Joint Universities Preliminary Examinations Board (JUPEB)
- Faculty of Law (LAW)
- Faculty of Life Sciences (LSC)
- Faculty of Medicine (MED)
- Faculty of Management Sciences (MGS)

- Faculty of Pharmacy (PHA)
- Faculty of Physical Sciences (PSC)
- Faculty of Social Sciences (SSC)
- Office for University of Benin Industrial Training and Graded Reports Scheme (UBITS)
- Faculty of Veterinary Medicine (VNM)
  Source: https://www.unibeninformation.com, 2025

The University of Benin stands as a reputable institution with a rich history. The university has proven to be a distinguished center for learning. Its commitment to providing quality education makes the University of Benin a compelling choice for those seeking a fulfilling and enriching educational experience.

The primary data was obtained using semi-structured questionnaires. The first stage of the primary data collection process was conducted through interviews of public officials such as electricity providers personnel, transporters, and postal servicemen and service women. In carrying out this process, respondents from various institutions were contacted and letters of information were sent through emails to inform them about the purpose of the study. An interview was then conducted with the aid of an interview guide. The interviews were basically aimed at seeking answers to questions regarding the approaches used in the implementation of the numbering system and how effective the system is for navigation as well as enhancing the management of the study area.

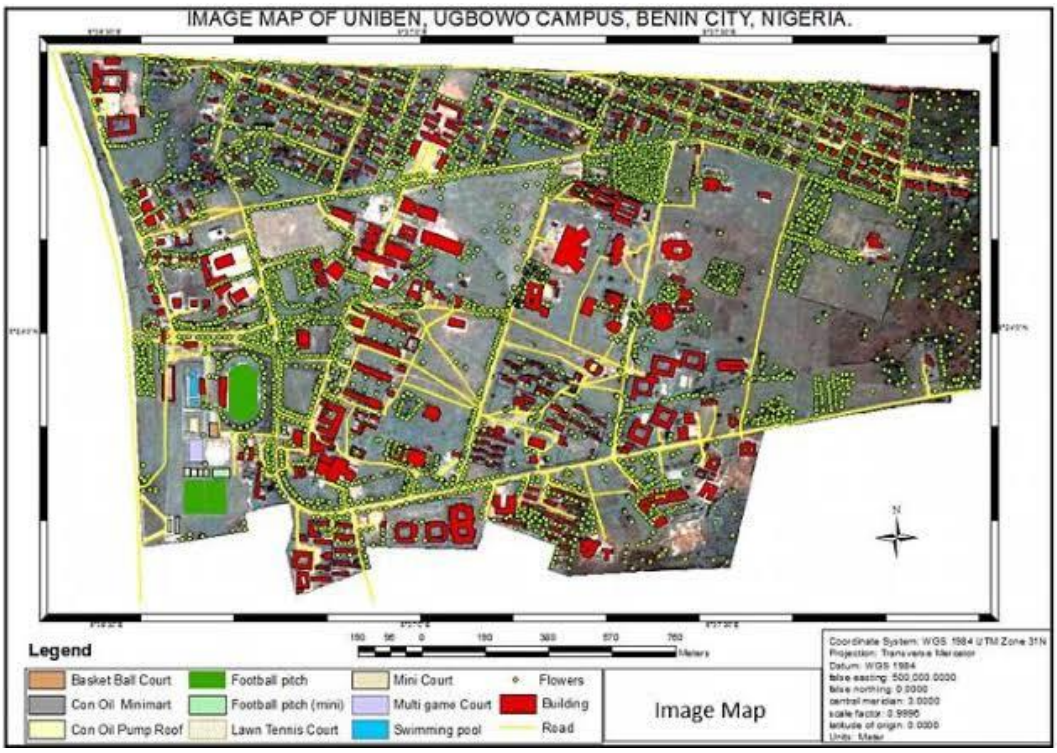
The second stage entailed a face-to-face field survey of residents within the study area. The purpose of the survey was explained to each respondent to seek their consent. The survey were conducted through a face-to-face one-on-one interview with the use of semi-structured questionnaires. The questionnaire was translated into the

local dialect and the responses were transcribed to English. These questions obtained gender and age distribution as well as the educational background of respondents, their familiarity with the numbering system in the study area, challenges encountered in navigating the area as well as their perception about the implementation of the graphic lighting system.

Figure 8:

University of Benin Main Entrance and Exit Gates
Source: https://www.universityofbeninmaingate.com, 2025

Figure 9



Map of University of Benin, Benin City
Source: https://www.mapofuniversityofbenin.org , 2025

Figure 10:

Front View of the Graphic Lighting System
Photo: Adeyemi Alaba , 2024

3.3 Method of Data Collection

In order to carry out effective research, information was collected from both oral or interviews and written sources using the formats relevant to the research.

Library: Relevant textbooks and journals related to the study was review for the purpose of obtaining insight and better knowledge to the works.

Internet: The researcher consulted the internet to source for necessary data and information that aided the study.

Interview and Discussion: in the course of this research both student and non-student were interviewed and engaged in discussion for the necessary information needed for this study.

Personal Observation: In the course of this research, the researcher personally observed materials and videos which enhanced the furtherance of the study.

3.4 The Materials used in the Study

The materials used for this study includes the followings:

1. Haco Board (for the Back)
2. Plastic Board (Used for the surface after forming 3D for easy illumination)
3. Soft Board (Used to carve all the letter to form 3D shapes)
4. Electronic Cutter
5. Glue (OK-5 Bond)
6. Electronic Led Bulb
7. Electric Wire
8. Nails
9. Electric Switch

Ok-5 Bond

It is a solvent used to reinforce and bond the joining of pieces of alphabet together during the construction of the graphic lighting system.

Figure 11: OK-5 Bond for Bonding the Alphabets Together

Photo: Adeyemi A., 2024

Figure 12 Soft Board

Photo: Adeyemi Alaba, 2024

Figure 13: Plastic Board

Photo: Adeyemi Alaba, 2024

Figure 14: Haco Board

Photo: Adeyemi Alaba, 2024

Tools Used

Figure 15: Cutter: The cutter was used to cut boards.

Cutter Used for Cutting
Photo: Adeyemi Alaba, 2024

Nails

Nails were used to hold the wires together to allow firmness of the electrical connection to the base.

Figure 16: Nails

Photo: Adeyemi Alaba, 2024

Sandpaper:

The sandpaper was used to smoothing the edges of the board used for the graphic digits.

Figure 17: Sandpaper for Smoothening the Rough Edges of the Graphic Lighting System

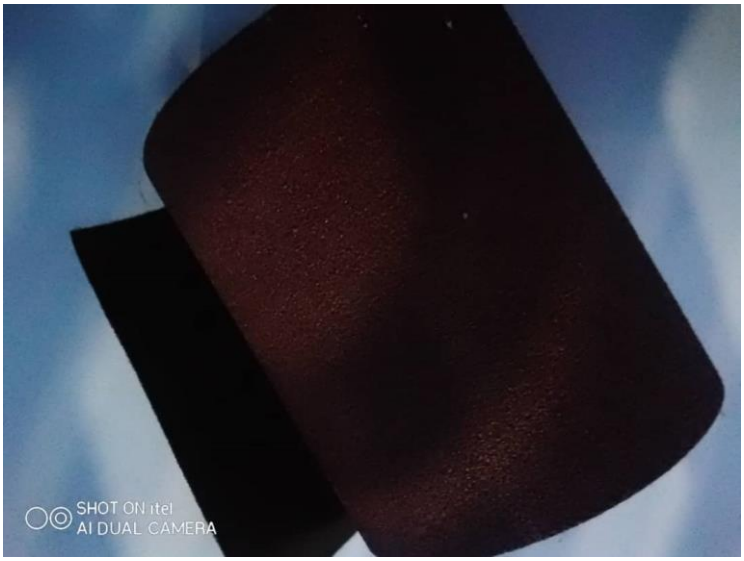


Photo: Adeyemi Alaba, 2024

Measuring Tape

The measuring tape was used for taking the measurement of the length and breadth of the boards used in the for the graphic lighting system.

Figure 18: Measuring Tape for Measuring Length and Height of the Graphic Lighting System

Photo: Adeyemi Alaba, 2024

Screwdriver

This screwdriver turns screws having a straight slot in the head.

Figure 19: Screwdriver used to Screw Nails where Nails could not be used for the Graphic Digits

Photo: Adeyemi Alaba, 2024

Flesh Saw

The flesh saw was used for cutting out the alphabets from the board. The flesh saw allows cutting of different shapes of choice.

Figure 20: Flesh Saw used for Cutting of the soft Board of the Graphic Lighting System

Photo: Adeyemi Alaba, 2024

Hammer

The hammer was used during electrical connection to hold hires to the base of the graphic digits.

Figure 21:

Hammer
Photo: Adeyemi Alaba, 2024

Figure 22: Illuminator for Illuminating the Graphic Lighting System at Night

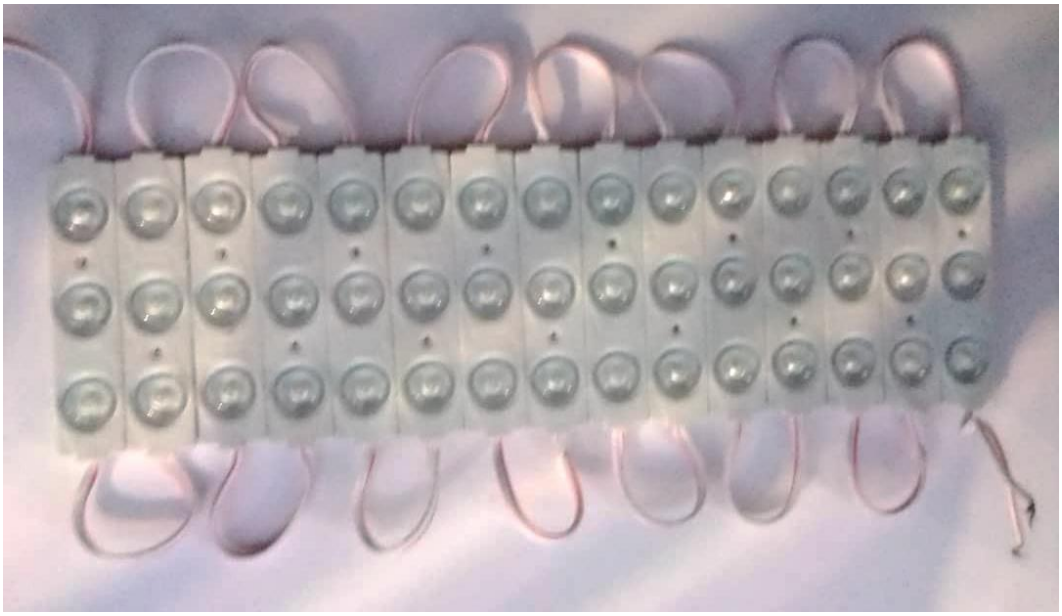


Photo: Adeyemi Alaba, 2024

Procedure (Studio Production Process)

The production process was carried out in five (5) stages.

Stage 1 – Cutting of Plastic Plate and Haco Board into Required Study Size: This step involved the precise alteration of these materials to fit the project dimensions and measurements as needed. It enables customization, consistency, resource optimization, experimental control, precision, and practical application, all of which contribute to the successful execution of the project.

Figure 23: The Researcher Measuring the Haco Board into Required Sizes

Photo: Olawale Atanda, 2024

This process involves the use of tools such as cutting machines, saws, knives, or other precision equipment to achieve the desired size and shape. The materials were carefully measured, marked, and then cut accordingly. Safety precautions were observed to prevent accidents and ensure the well-being of the researcher.

Figure 24: The Researcher Gluing the Letters Together

Photo: Olawale Atanda, 2024

Stage 2- Combining Measured Letters to Form UNIBEN

The act of "combining measured letters to form UNIBEN" was a process that involves arranging individual letters in a specific order to create the word "UNIBEN."

This word holds significance as it represents the acronym for the University of Benin, a well-known and respected institution of higher education in Nigeria.

The process of combining these measured letters were not merely a random or haphazard arrangement of characters; it involves careful consideration of Spelling, Order, Measurement, Visual Aesthetics and Brand Identity since in the context of educational institutions like the University of Benin, the combination of measured letters to form "UNIBEN" is often a critical aspect of the university's brand identity. It serves as a visual symbol that represents the institution and is commonly used in official documents, signage, logos, and promotional materials.

Combining measured letters to form "UNIBEN" involves graphic design and typography techniques were done to ensure that the resulting representation aligns with the university's branding guidelines and maintains a consistent and professional appearance.

Stage 3- Joining of Letters to Form the Design" with Plastic Glue

This stage process involved the use of various creative and practical applications to create visual representations, signs, or artistic designs. It involves adhering individual letters made of plastic together using plastic glue to achieve the set design. It allows for the creation of visual representations that convey messages, information, or artistic expressions, and it offers a durable and lasting result when executed with care and precision.

This stage involves the following steps:

Design Planning: Deciding on the arrangement and order of letters to create the intended design or message.

Letter Selection: Choosing the appropriate plastic letters, considering factors like size, font, and colour.

Glue Application: Applying plastic glue to the back of each letter and then arranging them according to the design plan.

Alignment: Ensuring that the letters are precisely aligned and properly spaced.

Curing: Allowing the adhesive to cure and the design to set, usually for a specified drying period.

Stage 4- Passing of Wire through the Dedicated Hole into the Letters so as to get Illuminated at Night

The process of "passing a wire through a dedicated hole into the letters so as to get illuminated at night" is a technique commonly used in various forms of signage, displays, and artistic installations.

Figure 25: Passing of Electrical Wire through Designated Portion of the Letters

Photo: Olawale Atanda, 2024

This method involves the strategic placement of wires within individual letters to enable illumination during night-time or low-light conditions. The steps are;

Letter Design: The first step involves selecting the letters that are intended to be illuminated and made of plastic. The design is carefully considered to achieve the desired visual effect.

Designated Portion Creation: In the design, specific portion or channels are strategically created within each letter. These dedicated holes are designed to accommodate wires and allow for the passage of electrical components while maintaining the structural integrity of the design.

Wire Routing: Wires, insulated electrical cables, are passed through the dedicated holes in each letter. The routing of the wires were done systematically to connect all the elements together while ensuring a neat and concealed appearance.

CHAPTER FOUR

VISUAL ANALYSIS, PRESENTATION AND DISCUSSION OF RESULTS

4.1 Visual Analysis

This chapter deals with visual analysis and discussion of results. The process of creating numbering system involves the precise alteration of materials to fit the project dimensions and measurements. The use of graphic lighting system in the University of Benin is a more recent development, influenced by technological advancements. The advent of digital technology and computerized systems allows graphic lighting system to start replacing traditional hand-painted or carved numbers. The use of graphic lighting system became even more prevalent with the rise of digital mapping and GPS technologies which rely heavily on numeric addresses and graphical representations for precise location identification (Johnson, 2015). According to Brown (2021), graphic lighting system in the University of Benin also offers the advantage of customization and aesthetics thereby allowing homeowners and businesses to choose fonts, styles, and materials that suit their preferences while encouraging them to follow suit.

Barret (1994) cited in Ikobi (2021), states that the goal of a formal analysis is to explain how the formal elements of a work of art affect the representation of the subject matter and expressive content. A thesis statement does not necessarily involve a statement of argument or original insight, but it should let the reader know how the artist's formal choices affect the viewer. Gale (2018), also noted that the analysis of artworks does not mean 'description of artwork'. To gain high marks, students must move beyond stating the obvious and add perceptive, personal insight. Students should demonstrate higher order thinking – the ability to analyze, evaluate and

synthesize information and ideas. Although description is an important part of a formal analysis, description is not enough on its own.

Figure 26:

Cement Blocks for the Base of the Graphic Lighting System
Photo: Adeyemi Alaba, 2024

Figure 27:

Bags of Cement for the Plastering of the Base of the Graphic Lighting System
Photo: Adeyemi Alaba, 2024

Figure 28: The Researcher Loading Sand for Building the Base of the Graphic Lighting System

Photo: Roland Omoyeni, 2024

Figure 29: The Researcher Moving Sand to the Site Location

Photo: Roland Omoyeni, 2024

Figure 30: Breaking of Ground for the Base of the Graphic Lighting System at the Main Campus, Ugbowo

Photo: Roland Omoyeni, 2024

Figure 31: Breaking of Ground Continue for the Base of the Graphic Lighting System at the Main Campus, Ugbowo

Photo: Roland Omoyeni, 2024

Figure 32: The Researcher Building the Base of the Graphic Lighting System

Photo: Roland Omoyeni, 2024

Figure 33: The Researcher Plastering the Base of the Graphic Lighting System for Beautification and Stronger Base

Photo: Roland Omoyeni, 2024

Figure 34: The Researcher Creating Electrical Channel on the Wall of the Base

Photo: Roland Omoyeni, 2024

Figure 35: Hanger for the Graphic Lighting System on the Finished Base

Photo: Roland Omoyeni, 2024

Figure 36: The Researcher Mounting the Graphic Lighting System on the Built Base

Photo: Roland Omoyeni, 2024

Installation: Once the illuminated letters or shapes are assembled, wired, and tested, they are securely installed in the intended location. This involves mounting the design on a building facade.

Figure 37: The Researcher Fixing the Electrical Connections of the Graphic Lighting System

Photo: Roland Omoyeni, 2024

Lighting Elements: At specific points along the routed wires, lighting elements were introduced. These lighting elements are LED modules. These components are securely connected to the wires and are strategically positioned to evenly distribute illumination.

Electrical Connection: The wires that were used are connected to a power source via a control box. The electrical connection allows for the illumination of the installed lighting elements. This connection was designed to be controlled through a timer to manage the lighting effect during night time.

Testing and Adjustment: Before the final installation, the lighting system was tested to ensure that all elements are functioning correctly. Adjustments are made to ensure uniform illumination and optimal visual impact.

Figure 38: Front View of the Graphic Digits before Painting the Base and Removing of the Unwanted Cover of the Graphic Lighting System

Photo: Adeyemi Alaba , 2024

Figure 39: The Researcher Painting the Finished Base for Beautification

Photo: Roland Omoyeni, 2024

Figure 40: The Researcher Pilling off the Unwanted Cover of the Plastic Board for Proper Viewing

Photo: Roland Omoyeni, 2024

Figure 41: Front View after Painting the Base and Removing of the Unwanted Cover from the Graphic Lighting System by the Water Fall

Photo: Adeyemi Alaba , 2024

Figure 42: Side View of the Graphic Lighting System

Photo: Adeyemi Alaba , 2024

Figure 43: Other View of the Graphic Lighting System

Photo: Adeyemi Alaba , 2024

Figure 44: Evening View of the Graphic Lighting System

Photo: Adeyemi Alaba , 2024

Figure 45: Night View of the Graphic Lighting System by the Water Fall

Photo: Adeyemi Alaba , 2024

Figure 46: Night View of the Graphic Lighting System by the Water Fall

Photo: Adeyemi Alaba , 2024

Night-time Illumination: During the night, the lighting elements within the letters or shapes are activated, creating an eye-catching and visually appealing effect, which makes visitors know the location they are. The arrangement of the lighting and its even distribution within the design result in a stunning display that is easily visible in low-light conditions.

4.2 Analysis of Findings

The analysis of findings from the study "Graphic Lighting System in the Numbering System: a production of graphic lighting system for the entrance to the University of Benin, Edo State, Nigeria" reveals significant insights into the impact and effectiveness of graphic lighting system within the numbering system. This analysis is based on data collected, observations, and responses from residents, property owners, local authorities, and experts within the University of Benin.

Enhanced Navigability and Service Accessibility: Findings indicate that the use of graphic lighting system in numbering greatly enhances the navigability of the locality. Residents and service providers, such as postal services and emergency responders, find it easier to locate specific addresses. This improves service delivery and response times.

Improved Emergency Response: The study highlights that graphic lighting system are instrumental in improving emergency response. Quick and accurate identification of addresses is vital in emergency situations, and the presence of graphic lighting system facilitates this process, potentially saving lives.

Impact on Property Values: The analysis reveals that properties with clearly displayed graphic lighting system tend to have higher perceived values. Prospective

buyers and tenants consider such properties more desirable due to the ease of locating them.

Challenges in Maintenance: It was observed that while graphic lighting system are effective when well-maintained, there are challenges related to their upkeep. Some residents and property owners face difficulties in maintaining the visibility of graphic lighting system, which may lead to decreased effectiveness.

Awareness and Education: The findings underscore the need for increased awareness and education about the significance of graphic lighting system in the University of Benin. Many participants expressed the belief that better awareness would lead to improved compliance and maintenance.

Technological Integration: Respondents noted that integrating technology, such as QR codes or smartphone apps, alongside graphic lighting system could further enhance the utility of the numbering system. This innovative approach would offer additional layers of information and convenience.

Variations in Implementation: The study revealed variations in the implementation and compliance with the use of graphic digits across different areas within the University of Benin. While some areas demonstrated high compliance, others faced challenges in consistent adoption.

Public and Private Collaboration: Collaboration between local authorities and private property owners emerged as a key theme. A cooperative effort could lead to improved maintenance and standardization of the numbering system.

Aesthetic Considerations: Some respondents expressed concerns about the aesthetic aspects of graphic lighting system, particularly in historic and cultural structures. Balancing functionality with visual harmony was deemed important.

Future Planning Development: The study findings underscore the potential role of graphic lighting system in urban planning and development. Campus designed and implemented graphic lighting systems can contribute to orderly in the Campus.

Finally, the analysis of findings from the study on graphic lighting system in numbering system in the University of Benin reveals a multifaceted impact. While there are clear benefits in terms of navigability, service accessibility, and emergency response, challenges in maintenance and awareness exist. The findings suggest that collaborative efforts between authorities, property owners, and technological integration can further enhance the effectiveness of the system. As the region develops and urbanizes, the role of graphic lighting system in University of Benin.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary, conclusion, and recommendations of the research.

5.1 Summary

The study has shown that graphic lighting system has a rich history that differs from one region to another and the introduction of graphic lighting system is a recent and welcomed development. The study has also discovered that the introduction of graphic lighting systems in the University of Benin was influenced by technological advancements. The shift allowed for more harmonised and a better visually consistent signage. Graphic digits became important because of the rise of digital mapping and GPS technologies which rely heavily on numeric addresses and graphical illustrations for accurate identification of location.

It is worthy to note that all the tools, materials, and instruments used in carrying out the research were locally sourced in the Nigerian markets, as the procedures of carrying out the research was adequately documented. The significance of graphic lighting system in the University of Benin, is not simply as practical markers but as essential components of a well-organized and navigable urban landscape. As the community continues to evolve and embrace technological advancements, the integration of these findings can pave the way for a more efficient, safer, and aesthetically pleasing environment, benefiting both residents and service providers.

5.2 Conclusion

In conclusion, the study on "Graphic lighting system in the University of Benin, Benin City, Edo State, Nigeria" illuminates the multifaceted impact of graphic lighting system within the university. The findings underscore the importance of this system in enhancing navigability by improving emergency response, and even influencing and beautify the institution. However, challenges related to maintenance and awareness are evident, calling for a concerted effort in adopting these issues.

Looking forward, this research provides valuable insights that can inform graphic lighting system in the university community. The graphic lighting system, when properly designed and consistently implemented, can contribute to the beautification and foster a more efficient and responsive university community.

5.3 Recommendations

Since the use of graphic lighting system in the University of Benin have greatly enhance the navigability of the institution, it is recommended that residents (students and workers that resides on campus) and service providers (those doing businesses in the campus) should make use of graphic lighting system so as to make visitors and customers locate the particular address easily, this will improve prompt service delivery and response in times of emergency.

Also, properties owners can emulate the graphic lighting system so as to give their property a higher value as prospective buyers or tenants will consider such properties more desirable due to the fact that it will be easy in locating them. It is also important that creating awareness and educating citizens about its significance in the numbering system. For this would lead to improved compliance to the use of graphic lighting system.

Furthermore, collaboration between local authorities and private property owners would improve the standardization of graphic lighting system, which will set a laydown policy for future or continuous urban planning that can contribute to the standard growth of the locality.

5.4 Contribution to Knowledge

This project has contributed to knowledge by utilizing local materials in producing graphic lightning system at the main entrance of University of Benin, main campus, thereby enhancing the aesthetics of the environment, provide lighting in the night and act as a source of inspiration for such project to be replicated in other areas of the campus

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