Making an Illustrated and Lit-Up Directional Chart for Effia Nkwanta Regional Hospital in Takoradi, Ghana

"Using New Wayfinding Design Solutions in Healthcare Settings to Make It Easier for People to Find their Way Around and Communicate Visually"

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Abstract

Handmade signs became popular on the Gold Coast in the early 1900s. Colonial governments and merchants brought signs with text and graphics into the area, and local craftsmen and artisans replicated them. This taught them how to letter and stencil, which ultimately became a local craft called sign writing. The art did well until Ghana got computer graphics and digital printing. Anecdotal evidence indicates that these developments have not been comprehensively recorded, resulting in a considerable deficiency of genuine historical data regarding the progression of signage technology in Ghana. The project aimed to conduct empirical research on the developmental trends of signage technology in Ghana and to record these findings for future reference. The study was limited to Effia Nkwanta Regional Hospital in the Takoradi city and employed a prototype. The study utilized qualitative research approaches. The Effia Nkwanta Regional Hospital used doctors, nurses, estate managers, and other hospital workers and visitors for research. More than fourteen blocks were employed to improve the research because the buildings are old and the layout is not apparent. The study employed unstructured observation, an unstructured interview guide, document analysis, and still photography to gather data. The information was written down by hand and stored electronically. The pictures were planned, organized, and changed. The artwork was enhanced, reproduced, transcribed, coded, and examined in alphabetical order. It was also well-lit and had pictures to make it simpler for workers, hospital patients, and visitors to read at night. The results showed that the Gold Coast was the first place to deploy lit and pictorial directional signs in the 1930s. People from the area who are skilled in crafts and art from Takoradi Technical University worked on it. Since then, the craft has made a lot of progress in technology. However, the arrival of computer graphics and digital printing in Ghana in the 1990s and 2000s, respectively, has made labor-intensive signs considerably less relevant in Ghana. The study therefore promoted the empowerment of communication design departments, graduates, and students in Ghana to explore diverse aspects of communication design across the nation and to record their findings methodically. Local sign writers who don't know how to utilize computer graphics should learn how to do it so they can stay in business.

Keywords: Wayfinding, Illustrative Design, Lit-Up Signage, Hospital Navigation, User Experience

Abbreviation

CNC- Computer Numerical Control, I.T. - Information Technology, US- United States, PC –Personal Computer, Eg– Example, Etc. - Etcetera, LED - Light Emitting Diodes Technology, LCD - Liquid crystal Display, EMCs -Electronic Message Centre, MCFT - Modular Curved fame technology, USB - Universal Serial Base, POS   - Point of sale, ACB   - Aluminum Composite Board, TV- Television.

1. Introduction

1.1 Background of the Study

Signage is the art of making and using signs to communicate with a specific set of people in a certain location or at a particular time. Depending on what the sign says and who it is for, it needs to be set up inside or outside. You can see outdoor signs on main roadways, in marketplaces, on stores and public buildings, and in other places. Businesses, on the other hand, need indoor signs. You can find them in schools, hospitals, bank lobbies, airline terminals, office doors, stores, houses, and other places. The word "signage" became widespread from 1975 to 1980. There are many different kinds of signs, such as neon signs, street signs, and others. The goal of this chapter is to figure out what the problem is and how to fix it for the project at hand best: designing and making illustrated and Lit up directional signs for Effia Nkwanta Regional Hospital that will help people find their way around the hospital by linking messages to different departments, sections, and wards.

1.2 Statement of the Problem

There are no detailed and lit-up signs at the Effia Nkwanta Regional Hospital in Takoradi to show how to properly navigate with the premises of the hospital. It's challenging for people to find the hospital and its numerous departments, especially at night. Because of this dilemma, the researcher wishes to make a clear and well-lit-up directional chart that shows buildings, roads, parking lots, and other essential things. If the chart is well-lit, people should be able to see it and read it better. It should also assist them go to the hospitals at any time of day or night.

1.3 Objectives

- To learn everything there is to know about the Effia Nkwanta Regional Hospital for the map.
- To see if this kind of work has ever been done previously.
- To design a more valuable and easy-to-see directional chart for Takoradi Effia Nkwanta Regional Hospital that would help people find the hospital and its departments quickly, day or night.

1.4 Research Questions

- How does the lack of Lit Up and pictorial directional signage make it harder for patients and visitors to find Effia Nkwanta Regional Hospital and its departments, especially at night?
- How would lit-up and illustrated directional chart help people in the hospital see, read, and get around during the day and at night?
- What essential elements (such buildings, roads, and parking lots) should be on the suggested directional chart to help hospital visitors find their way about easily and quickly?

1.5 Hypothesis

Suppose there is a directional chart for Effia Nkwanta Hospital that is unambiguous, well-made, and simple to understand. In that case, it will be much simpler for tourists, students, and individuals who are just passing through the Takoradi metropolitan area to reach their destination.

1.6 Importance of the Study

The higher illustrative visibility directional signage will let people who pass by or visit know that the Effia Nkwanta Regional Hospital exists. It will serve as a resource or educational material by giving graphic designers useful information about how to make similar signs for other institutions and businesses that don't have directional signage.

The project will not only help the hospital get the word out, but it will also help visitors learn about the numerous departments that the hospital has. Use indoor map will help people get to the hospital safely. This will make hospitals safer and more secure. Find out how traffic moves and how people move around. In other words, heat maps can be used to colour-code particular wings and portions of the hospital on indoor maps. This helps individuals understand how traffic moves around the healthcare institution.

The more brightly lit, pictorial visibility signs will make it less likely that personnel will be disturbed. Instead of asking staff or volunteers for directions, patients and visitors can use location technology to navigate their way about the hospital.

The Hospital's Estate Manager at the Effia Nkwanta hospital recently reported that medics and other staff spend an average of 5,100 hours a year giving directions. The study's goal is to get more patients to show up. Using indoor mapping technologies that show appointment timings can help hospitals cut down on late arrivals and no-shows. This manner, patients can arrive on time. Sharing directions might be helpful at Effia Nkwanta Regional Hospital since patients can utilise indoor positioning technology to convey their exact location while they are inside the hospital.

1.7 Delimitation

The study concentrates on employing premium materials for the design and construction of a 4×2 feet illustrated and Lit up directional chart for Effia Nkwanta Regional Hospital, designated only for in-hospital use.

1.8 Organization of the Rest of the Text

Chapter two talks about the literature review that is relevant to the project issue. Chapter three talks about how the project will be done. The fourth chapter talks about the strategy utilised to develop the study's design. This is the step-by-step roadmap for the project work. Chapter five contains the study's summary, conclusion, and suggestions.

2. LITERATURE REVIEW

2.1 Overview

This chapter analyses pre-existing documented information relevant to the research project. So, it talks about some topics that will make this work better. Some of these subjects are the history of signs, the signs of technology, what signs are, why they are significant, the different types of signs, the aspects of design, and more.

2.2 History of Signage

According to articlesbase.com (1910), signs have been around since people started using cave paintings to talk to each other. Most of these graphics were either religious or ritualistic, but symbols are now a significant element of how people talk to each other. "Sign" derives from the Latin word "signum," which means "mark" or "token." The Romans were the first people to realise how proper signals could be. They devised the first road sign system, which employed columns with Roman numerals to denote how far away and which way to go. As societies expanded, signals were an essential tool for people to talk to each other. People have always used signs to advertise, like when store owners put their names on the doors of their establishments. But in 1929, when a car dealer in the U.S. ordered the first neon lights, a new era in signs began. People from all over the United States flock to watch the "dancing fire," and the success of neon lights swiftly extended to other parts of the world. There were other products made, such as LED lights. For the first time, it was feasible to have a sign that said things like "road open" or "road closed." It immediately became a valuable way to keep people safe on the road. A new era of signs is beginning now.

The prices of LCD (liquid crystal display) and plasma TV technology are going down. More and more individuals are finding new methods to employ digital signs with LCD and plasma screens every day. We are even seeing more outdoor digital signage because there are now waterproof LCDs and LCD enclosures that keep devices safe. If things keep going the way they are, digital signs may eventually replace traditional signs like neon and LED. The researcher would like to emphasise that there aren't many company activities that have been around longer than the advertising sign, based on the history of signs above. From the past to the present, it has always been an essential aspect of trade, business, and industry. People still employ symbols in their daily lives, just like they did hundreds of years ago. Signs and symbols are not just cultural distinctions; they help people work together and talk to each other, and they will keep changing as people do. Wikipedia says that signs are words or pictures that tell people where to go, what to do, or what to avoid. According to www.Britannica.com, signage is "a device placed on or before a premise to identify its occupant and the nature of the business done there or placed at a distance, to advertise a business or its products." The researcher posits that signage encompasses any visual representation intended to convey information, directions, or identity to a particular audience or set of viewers. So, signs are frequently posted where people can see them, such on busy streets or inside and outside of buildings.

2.3 Benefits of using directional Signage

The New Encyclopaedia Britannica, USA (2003) and Wikipidia.com/answers.com (2003) suggest that signs are essential for these reasons:

- It helps a firm create its brand equity by showcasing words, photos, and symbols that are relevant to the business every day. This also allows companies to establish goodwill.
- People remember signs well. A sign with good language and visuals is likely to become well-known, which will help sales.
- Signs can make someone who is thinking about buying something rethink their mind.
- Signs bring in impulse buyers, which helps sales. A lot of people who don't know the store walk in, not because they want to buy anything fantastic, but because the signs are acting as a quiet but efficient salesman. You may also think of an outdoor sign as point of sale (POS) signage.
- Signage reveals what people desire and how they act, which is a reflection of society. It also makes the world feel like a part of society.

2.4 **Types of Signage**
There are two fundamental sorts of signs that most people employ. They are: Signs for inside and outside (Wor, 2016).

- Information Signage: This kind of sign is an inside sign that tells people about the services and amenities available. They not only give directions, but they also tell you about maps and directories, among other things.
- Information Signage: This type of sign is an inside sign that tells people about the services and amenities available. They not only give directions, but they also tell you about maps, directories, and other stuff.
- Directional Signage: These signs can be put either indoors or outside. These signs show you where to find services, facilities, functional spaces, and important regions. They frequently feature arrows or other words that inform you where to go.
- Identification Signs: These are signs inside and outside that show where things are and what services are available. Examples include room names and numbers, restrooms, floors, car parks, and so on. They also need to tour customers around and inside a building. For instance, signage that tell people how to get in and out.
- Required Signs: These are signs that are placed up inside and outdoors that tell people to be careful, give directions, and warn them. Everyone knows them; thus, they don't need to be complimented. This set of signs includes traffic signs, warning signs, and any other signs that advise you what to do.

2.5 **Forms of Signs**
The researcher will also wish to give a summary and further information about the basic types of indications, ideas, and technologies that they think are important and useful for this study.

2.5.1 **Normal Signs**
Traditional advertising methods like conventional signage provide diverse messages and information to specified places. Different groups of businesses and advertisers are trying to make traditional signs. These advertisers put up a lot of signs inside and outside to get their point across. People utilise regular signage around roadways, marketplaces, enormous shopping malls, bus stops, airports, train stations, casinos, and hotels. Most of the time, these signs are made of plastic, steel, aluminium, vinyl, glass, or paper.

Traditional signs have a lot of challenges when it comes to creating, shipping, and putting them up. The most significant problems with regular signs are that they cost a lot of money and time to manufacture, send out, and put up.

There are a few things you need to do to make and set up a sign. More specifically, whenever a graphic designer or advertising expert makes a sign, they provide it to the distribution team, who will make sure it gets to the proper spot and then to the installation team. The people who put up the sign put it in the right place. The expenses of signs include the resources, the work, and the effect on the environment (creating the sign, putting it up, taking it down, and giving it out). Putting up a lot of signs or putting them in busy areas usually costs a lot of money, which makes them highly expensive. Another problem with traditional signs is that they can only convey static messages and information.

A single sign can only show one message or ad at a time. Some signs, on the other hand, can show a few messages or adverts in a cycle. These signs that don't move can't show or advertise more interactive content like films, web pages, and elaborate graphical animations. It will be helpful to share different types of information with others. For example, an ad in a mall might only show up at particular times and be focused at individuals over 50. The ad should be adjusted to match these people if there are a lot of teens and young adults in the mall late at night. But this is exceedingly hard and expensive with a standard sign system.

2.5.1 Digital Signs

Digital signage is a common way to control and share digital material via networked displays from one central place. More and more people are using this technology. Digital signs are better than typical signs in a lot of ways. It can show live video broadcasts, interactive messages, films, animations, online information, and more. This sign that moves can draw in more visitors and keep them gazing.

Digital signage is made up of a display device and a display controller. You can use a PC or a digital media player as this display controller. Figure 2-1 illustrates a basic digital sign. Many companies are changing from standard signs to digital ones. This digital signage benefits the company in a lot of ways, such as getting more consumers and boosting its business. Digital signage may give students, instructors, staff, visitors, and others valuable information about events and other important things happening at colleges and institutions.

2.5.2 Types of Digital Signage
There are three main types of digital signage:
- Stand-alone Digital Signage
- Web-based Digital Signage
- IPTV-based Digital Signage

2.6 Sign Technologies
The following are the major technologies involved in sign-making:

2.6.1 Electronic Message Center Signage

Vinaigrette (2016) says that Electronic Message Centres (EMCs) are outdoor electronic visual communication devices that may be programmed and used outside. You may set EMCs to show varying amounts of time and store and show different types of pictures and formats. You can modify your message on an electronic message centre as often as you like without having to pay for new sign parts, letters, or labour. You can set them up any way you choose, and they can even alter on their own depending on the time of day. Electronic Message Centre cabinets are built to last in all kinds of weather, such rain, snow, and sunshine. The ultra-bright LEDs make the sign simple to see even in strong sunshine, so it's a good way to advertise at any time of day. You can use them outside on a monument, pylon, or pole, and sometimes even inside.

2.6.2 Street Signage

Street signs are signs that tell you what the roads are called. The letters on street signs are either embossed or printed on metal. Drivers can get directions or information from these signs that people place up on the side of or above roads. The first signs were just plain wooden or stone posts. Later, signs with arms that point in different directions were put up—for instance, the fingerposts in the UK and the wooden ones in the state of Saxony.

2.6.3 Neon Signage

Bellis M. (2006) says that the idea for neon sign technology goes back to 1675, which is before electricity was established. French astronomer Jean Picard detected a tiny glimmer in a mercury barometer tube at that time. People didn't know what made the light (static electricity), but they did know that shaking the tube made it glow. People were interested in barometric light, even if they didn't know what created it. Later, when scientists discovered more about how electricity works, they were able to make many various kinds of lights.

2.6.4 Modular Signage

A modular signage system is made up of pre-designed basic pieces, according to http://asisignage.com (2003). ASI's outdoor modular signage systems are made and engineered to the highest standards, so they can stand up to the weather and other things from coast to coast and border to border. Modular signs will let architects, designers, and facility managers provide critical information about how to go about while also promoting the organization's brand. Some clear sections in each modular signage solution may be put together in numerous ways to make the exact solution that the project needs.

2.6.5 Monument, Pylon, and Pole Signs

According to www.//http.pylon.momument.com, signs that are not attached to anything and touch the ground. Pylons can be 20 feet tall, pole signs can be 20 feet tall, and monuments are usually 6 to 8 feet tall. Some examples are signs for cities or towns that are outside, anchor signs for malls, truck stop signs that are 35 feet tall, and architectural signs that can be used for a lot of different purposes.

2.6.6 Custom-Made Signage

According to http://www.custommade.com/gallery (1930). Signs that are developed from scratch to fit the needs of a customer or a project. Changing the information on the sign is complex and expensive for most

custom-designed systems, which is one of their biggest challenges. You can't accomplish that without getting a new sign or at least some of the expensive custom-made elements.

2.6.7 MCFT (Modular curved fame technology)

Again, (2003) says that Modular Curved Frame Technology is a novel idea in the sign sector. Experienced sign makers created it to fill the gap between custom-made and modular sign systems. A modern mix of personalised signage and modular sign systems with a curved shape. IT short form: MCFT lets you change the cost based on how much customisation you want, which gives you more options when it comes to budgeting.

2.6.8 LED Signs

Mitchell (1977) notes that an LED sign is a flat panel display that uses many light-emitting diodes as pixels to show video. They are so brilliant that they can be used outside on signs and billboards. They have also been popular for usage on the destination signs of public buses in the last few years. LED screens may do more than only show pictures. They can also be used for general illumination, including stage lighting or other decorative reasons that don't need to convey information. The first actual all-LED flat panel was utilised to build a screen for a TV. The researcher wants to use the sign technologies listed above to make sure that Effia Nkwanta Regional Hospital has enough signs on the street. It costs less than the others and will perform what it's supposed to do for an extended period.

2.7 Categories of Signage

Wikipedia.com (2003) indicates that there are three kinds of signage: signs that are attached to buildings, signs that stand alone, and signs that are inside buildings. Signs that are attached to buildings or stand alone are examples of exterior signage. On the other hand, interior signs help clients find their way to certain places, such an office, bathroom, or apparel section. The researcher aims to build a sign that doesn't need anything else to hold it up. This is because, after the job is done, it will be put on display in a prominent position or in the lobby, where it will direct, inform, and interest the audience.

2.8 Definition of Design

According to the 1930 edition of the World Book Encyclopaedia, design is "the planned arrangement of materials to achieve a specific result or effect." Sackey et al. (1996) define design as "the process of graphically resolving multiple problems." Gilbert (1992) characterises design as "the intentional arrangement of lines, shapes, masses, colour, texture, and space within a work of art." The researcher posits that despite the variations in definitions; there is consensus on a singular design concept. The researchers want to claim that a design is a visual pattern or arrangement of artistic elements generated by the graphic designer. Design is the process of coming up with fresh ideas for products and services or making ones that are already good even better. The sign looked beautiful since the design components and principles worked together.

2.9 Elements of Design

There are a lot of design parts. There are lines, spaces, colours, textures, and dots. But for this project, colours, lines, and spaces are the most crucial elements.

- Line

According to the New Standard Encyclopaedia (1930), a line is "the basis of Design." Amenuka et al. (1991) say that a "line is any path made by a moving point of a tool." Additionally, the researcher asserts that a line can be characterised as any narrow, continuous mark made by a moving tool or object on a surface. You can't get rid of line in any piece of art. So, it is possible to say that how something looks can change the atmosphere or help the reader's eye move over the page to make reading easier.

- Room

The New Standard Encyclopaedia vol. 4 (1998) notes that space is "the area occupied by volume" again. Amenuka et al. (1991) contend that "space is an open area with no boundary at least in one direction." Based on the definitions of space above, the researcher wants to add that space is an open area that has not been filled with anything or an area where a vacuum is generated. When making the signage, space is also essential.

This is because you have to consider about how much space you have when you write the text on the signs so that the job doesn't look uneven. Optical space will also make it simpler to read, so you can read even if you're far away.

- Colour

Amenuka et al. (1991: 36) remark that colour is "the interesting part of design." The New Encyclopaedia Britannica volume 4 (2003) explains that colour is the hue, brightness, and saturation of something's physical appearance. The researcher wants to say that colour lets you see or tell the difference between things, especially if they are the same shape and size. Adding colour to this sign will make it look nicer. Adding colour will make the task more fun and simpler to read.

2.10 Constructions

Fales et al. (1998) characterize construction as "the process of producing structural products." Harms et al. (1993) assert that construction involves utilizing manufactured materials to erect a structure on-site. Sackey (1999) posits that, upon finalizing the design and completing the drawing, it is imperative to strategies for its construction. He also says that it means carefully thinking about things like how much and what kind of materials and fittings are needed, how much they will cost, and what tools are required to build, put together, and finish it. The researcher would like to say that construction is the act of making or creating something meaningful by putting or combining materials. The researcher thought it would be a good idea to build signs for the Effia Nkwanta Regional Hospital because there aren't any to help people find their way to the hospital's services.

2.11 Importance of signage

According to Alphalewissigns.com (2016), signs are significant for many reasons:
- Functionality: Your signs not only advertise your business, but they also help customers discover it and your products and let them know when you have a sale or special offer. This might assist you tell others about your marketing efforts and make your consumers' experience better.
- It shows new brands to those who might want to buy them.
- Branding and visibility: People are more likely to buy from a business they know than one they

don't. Signage that sticks out and grabs people's attention shows those who might become customers over time and helps you establish a strong brand.

• Differentiation: Signs may help you stand out from the crowd and make your brand truly unique. As long as your signage show what makes your business different from others, they can work as a virtual salesperson 24 hours a day, seven days a week.

2.12 History of the Effia Nkwanta Regional Hospital

The Effia Nkwanta Regional Hospital is a public institution run by the government of Ghana. It was built in 1938 as a Military Hospital by the British West African Royal Frontier Force (BWABFF), which was located in Takoradi at the time.

The British Colonial Administration took over the hospital soon after World War II ended in 1945. Over time, it grew into what it is now. The hospital is on a hill, about 500 meters from the sea, and is bordered by Adiembra Road to the north, Poasi Road to the south, Essaman to the east, and West African Mills to the west. It has a tropical environment with an average of 70 mm of rain per year and covers 188.58 acres.

In 1948, the military gave the Effia Nkwanta Military Hospital to the Ministry of Gold Coast Colony. This meant that the former hospital in Sekondi had to shift to Effia Nkwanta ultimately. Some people say that the hospital is the third largest after Korle-Bu and Okomfo Anokye Teaching Hospitals. It has 416 beds and is the primary referral centre for the Western Region, parts of La Cote d'Ivoire, and the Central Region of Ghana.

It also provides clinical support services to the districts of the Western Region. It is accredited to train doctors and other clinical support staff in horsemanship and post-graduate residency programs. It is also the principal place where nurses and midwives at the Nurses and Midwifery Training School, Sekondi, get their clinical training.

2.13 Discussion of Finding

A closer look at the preceding directional chart indicates that it does not meet several design standards that would make communication better. Graphic designers employ these criteria to build directed charts that are easy to understand, look nice, and have the most effect. The last directional chart didn't make the information obvious and easy to read because the hospital do not have enough design features that may have made it stand out more.

The old directional chart is not easy to read and notice at a glance because the message is short. But most people who can see this project only see a few parts of the design. One of the most critical parts of the directional chart is that you cannot see all the available design elements.
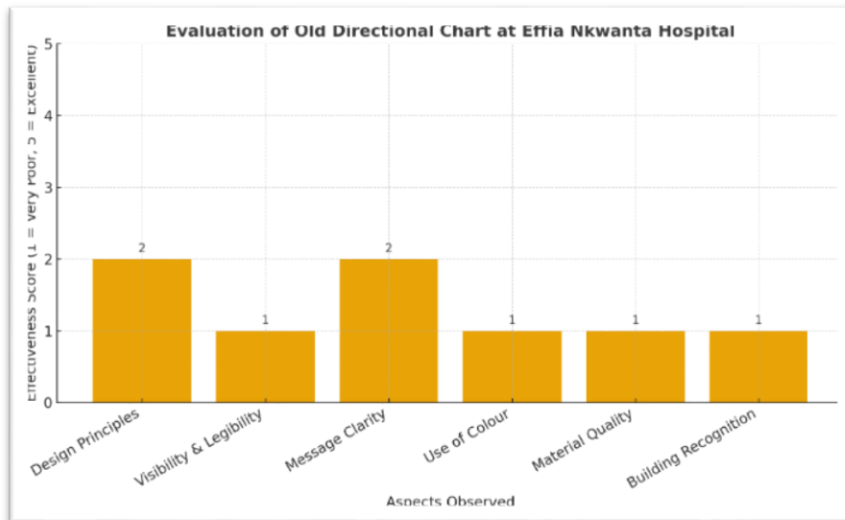
It was found that a good directed chart gets its information across quickly. This effort tries to get the point over to the right people using as little words as possible. Research shows that a directional chart with too much text or lines makes it hard to read from a distance. The hues on the old directional chart don't match the colours on the old illustrated directional chart that other departments use. The researcher discovered that the hospital's outdated outdoor advertising directional chart was constructed from a single sort of metal, which was corroding and appeared excessively aged to be examined. None of the buildings on the old directional chart in the hospital domain could be identified either.
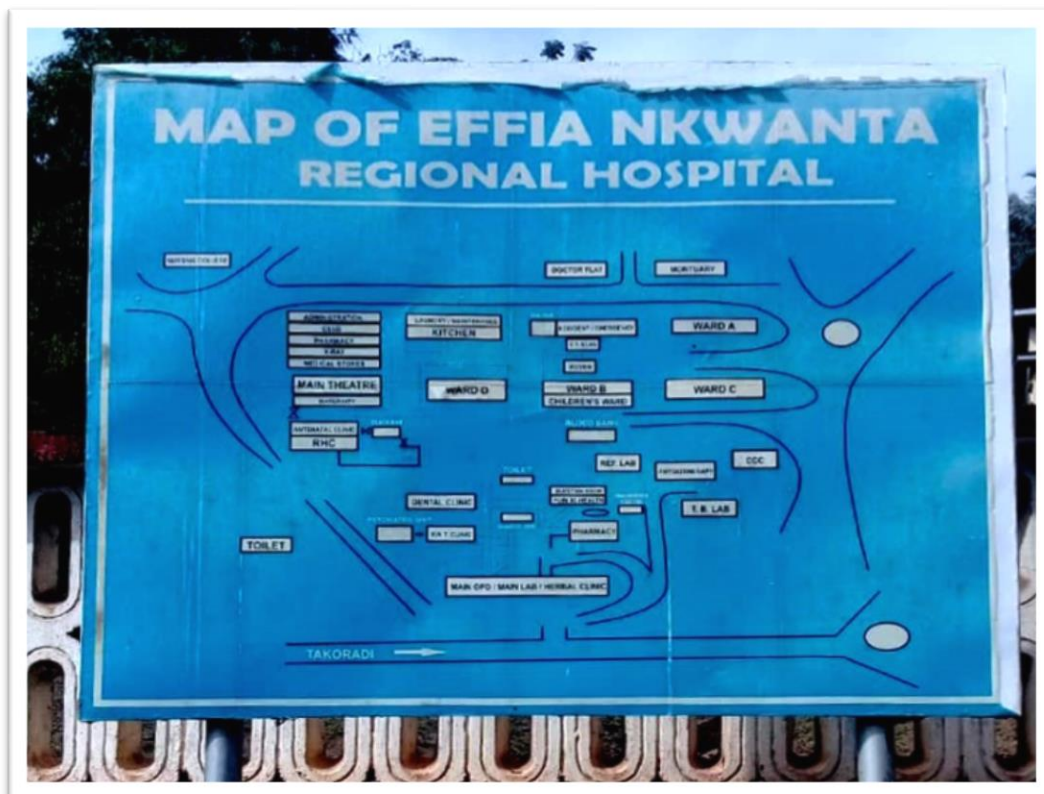
Plate 1: *Old Directional Chart of Effia Nkwanta Regional Hospital in the Takoradi Metropolis, Ghana.*

3. METHODOLOGY

3.1 Overview

This chapter talks about how the researcher got and looked at the information he needed for his task. This chapter also talked about the study's population, the many types of people in it, and how they were found.

3.2 Research Methodology

This is what the researcher did to make the project better. The researcher heavily relied on qualitative research methods for the study. The study design includes analytical, descriptive, and historical methodologies. We chose the descriptive method for this project since it is the best way to illustrate the process. Once again, the descriptive approach was utilised to tell us about the materials that would be used, which would last and work for the project. The detailed description of the methodical procedure followed to carry out the project was still there.

3.3 Data Collection

The Effia Nkwanta Regional Hospital gave the researcher information. A digital camera was used to take pictures of the antique directing signs that were constructed for the hospital. The photographs and other pertinent information that were collected only included the names and some job titles of workers from different departments and connected offices at Effia Nkwanta Regional Hospital. This greatly helped the researcher get the knowledge they needed to do a good job on the study. The researcher also got in touch with the hospital's Director and the Estate officials to get more information regarding the outdated overview map. Other hospital staff and patients were also interviewed formally. The interviews were more critical to the project than other methods since the people who answered were more eager to talk than to write. The researcher was able to collect private information from the respondents before the project started since, they had a good relationship with them.

The researcher used computer software to get a correct overview map of Effia Nkwanta Regional Hospital from the Google Maps website. They knew that the hospital's prior map was not good enough or was broken. We also utilised the observation approach to figure out what tools and materials we would need for a project that would last.

3.4 Tools

Different names are used for tools used in particular fields or occupations, such as "instrument," "utensil," "implement," "machine," "device," or "apparatus." These are some of the technologies the researcher utilised to make the lit and illustrative directional signs.

The tools used for the project include a Hack Saw, Hack Saw Blade, USB flash drive or Pen drive, Knife-Edge Finger File, Brush, Locking Measuring Tape, Pencil, Try Square, Mallet Hammer, Overall, Safety Boot, Laptop Computer, Bench Vice, Digital Camera, CorelDraw, Squeegee, Silicon Gun, Riveting tool, Metal –ruler, Table, pen, pencil, small-water can, and T-Square.

3.5 Materials

Material is something that is part of a work but can't be changed or used to do work. The project's supplies include: Aluminium Composite Board, Transparent Sticker, Hardener, White Acrylic Spray, paint,

Thinner, Rivets, Electrode, Square Galvanised tubing, Sand Paper, Primer, Oil Paint (Flamingo Glossy paint), "Washers," and Transparent Sticker.

3.6 Equipment

Equipment is any electrical gadget or machine that makes it easier to do a job. The plotter printer, computer numerical control (CNC) machine, hand-driller machine, and welding machine are all listed here.

3.7 Comparative Analysis Table

Criteria	Illustrative Charts (Maps, Pictograms, Murals)	Illuminated Charts (Lit Panels, LED Signs)	Combined Approach (Recommended)
Making things clear for new users	it's good if maps and icons	Very clear in dim light and hallways	Best: orientation and visibility
Accessibility for people with low literacy or who are older	Strong with colours and pictures	Good contrast and fast arrows	Best: pictograms and bright contrast
Visibility during the day and at night	Not strong at night	Great in every situation	Balanced and flexible
Fit with culture and style	Warm, human, and can use local themes	Modern/clinical, needs soft styling	More maintenance, but long-lasting with planning
Durability and care	Needs little care, may fade	Needs power and maintenance (LED drivers and cleaning)	Higher at first, but cheaper in the long run
Cost Speed of finding your way	Less upfront and over time	Higher costs up front and over time	Fastest (map and lit path)
Updates and scalability	Slower (reading maps)	Quick (arrows, lit signs)	Flexible with a modular system
Local Limitations	Easy with printed inserts	Modular, but needs electricity	Needs a backup that works with both UPS and photo-luminescent lights.
Best Use	Works without electricity	Needs electricity that works and safety	The whole hospital system
Making things clear for new users	Entrances, reception areas, and orientation nodes	Corridors,intersections, and exits for emergencies	Best: orientation and visibility

4. DESIGN DEVELOPMENT STRATEGY

4.1 Overview
This chapter entails the design and development strategies, which include design objectives, preliminary design, production process, prototyping and evaluation or appreciation.

4.2 Design objectives
The design objective was to produce an illustrative and lit up directional Chart for Effia Nkwanta Regional Hospital.

4.3 Preliminary Design
According to Kurankye (2008), preliminary design is defined as initial sketches made for the researcher to get the idea for the production of the signage. It involves the various stages that the researcher went through before arriving at the acceptable design for the project. The preliminary design stages involve the thumbnail layout sketch, rough layout sketch and the finished layout sketch.

4.4 Thumbnail sketches
A series of thumbnail sketches was made until the proper layout was found that worked as a finished rough draft. This was about the first sketches that were made to come up with ideas for the final design of the Lit up and illustrated directional signs that were expected. Thumbnail sketches were made to find the design. These thumbnail sketches were made from rough layout sketches and finished layout sketches.

Plate 2*: Using the curved tool in Coral Draw, I made thumbnail sketches based on the overview map of the hospital.*
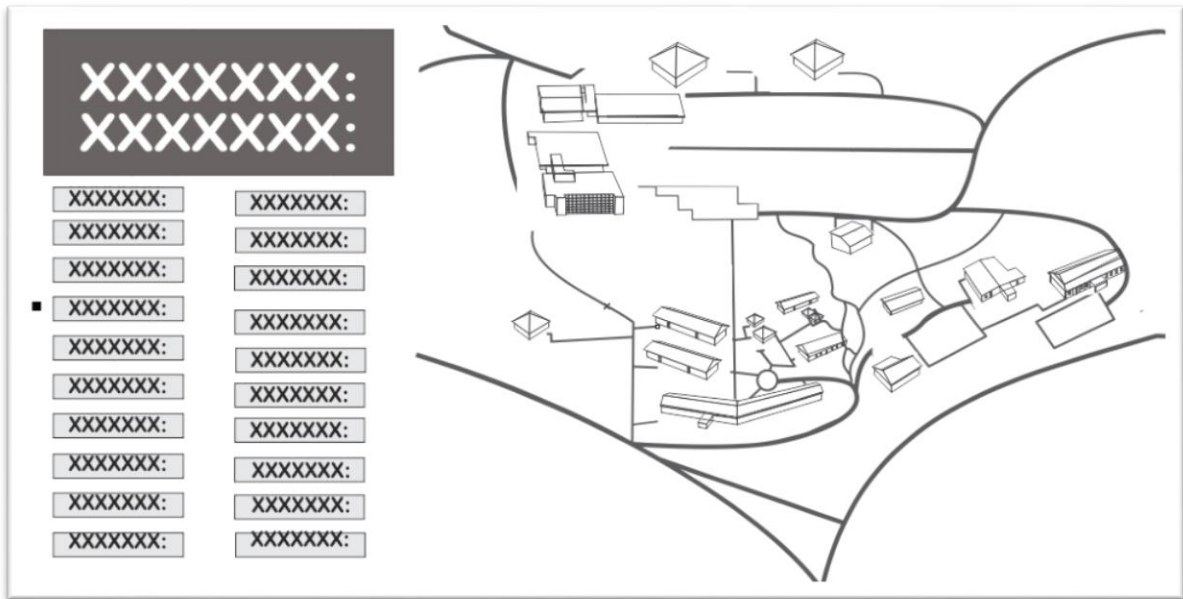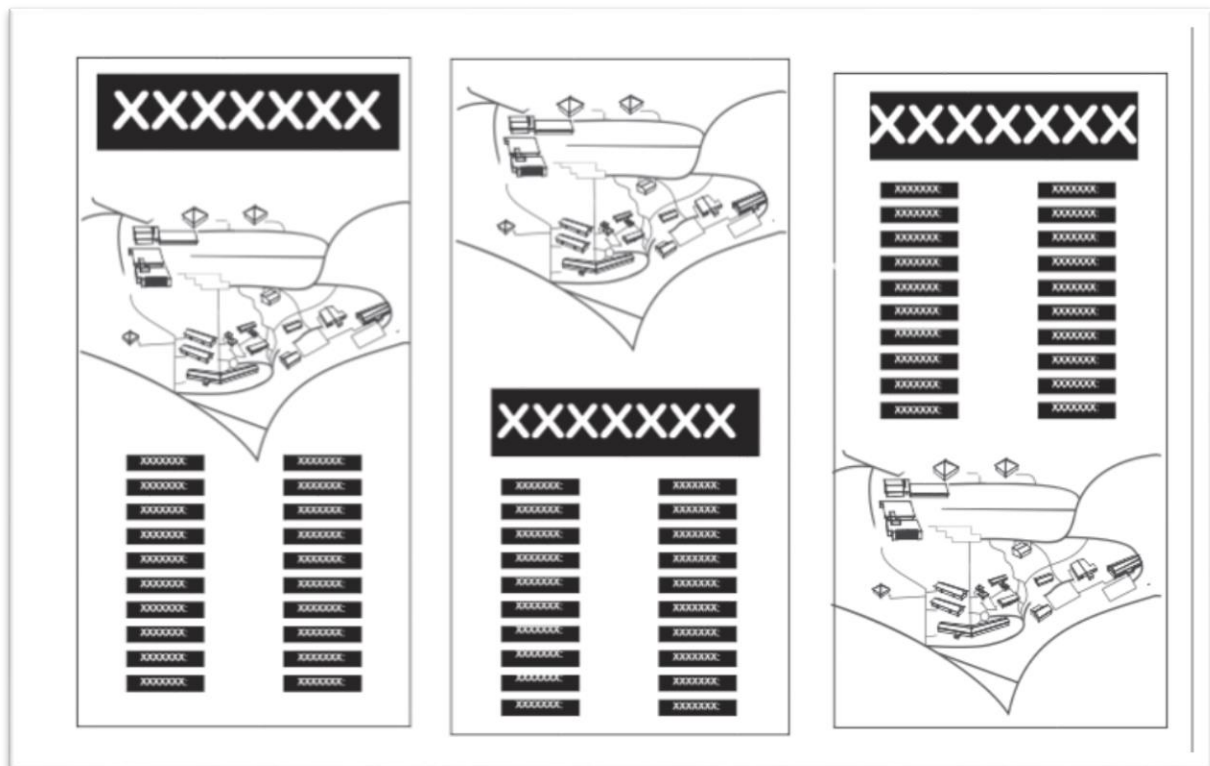
Plate 3: Thumbnails of the building's layout made with shapes.

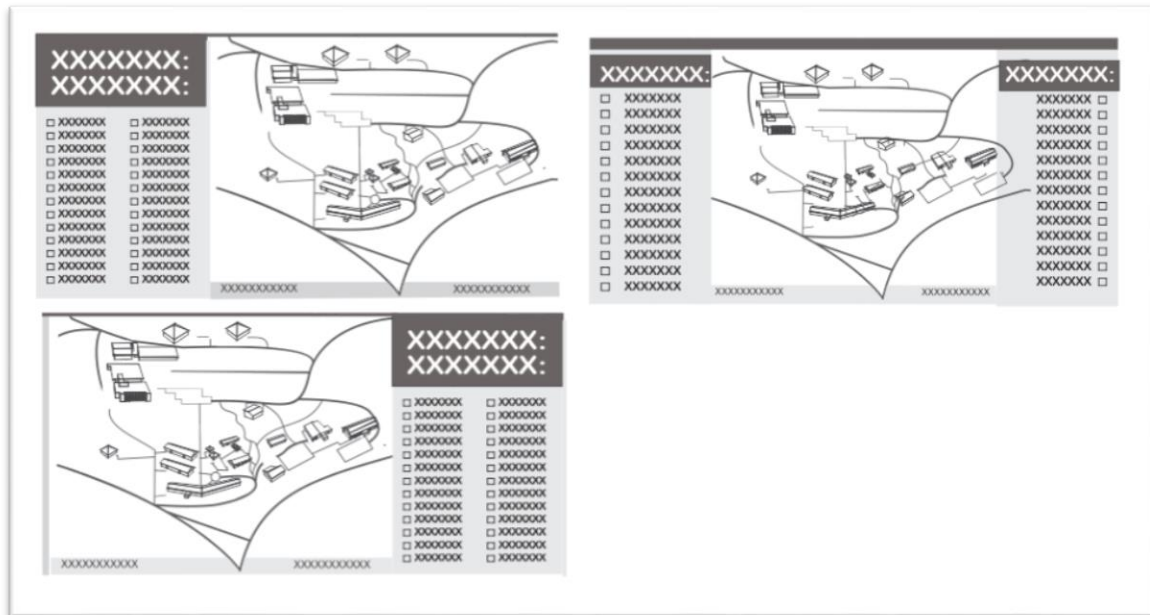

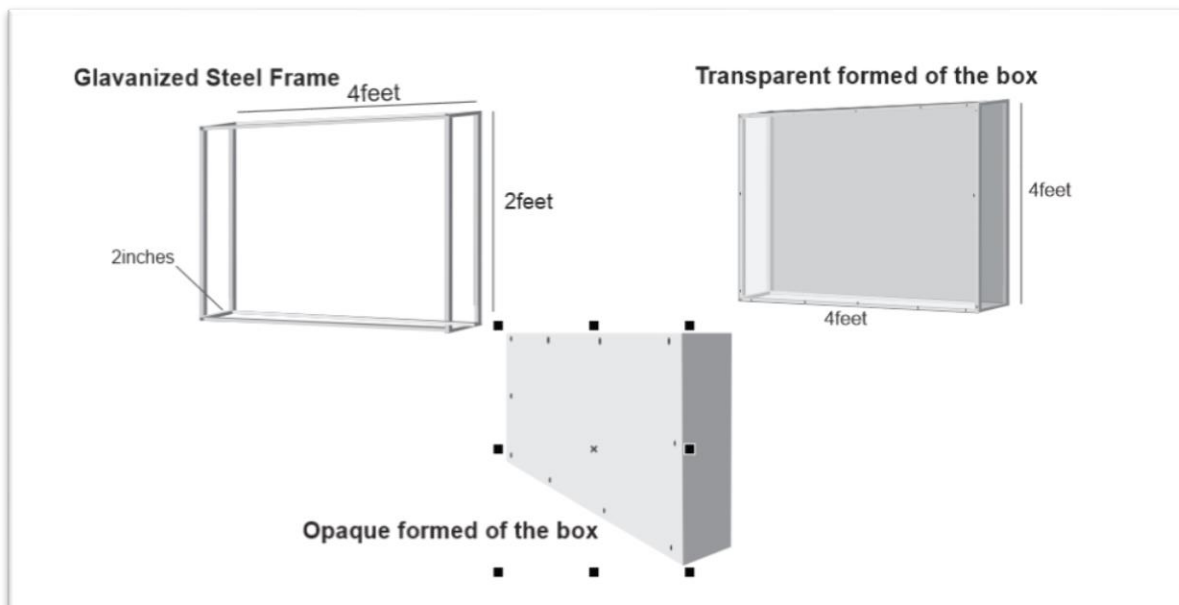*Plate 4*: *Combining the thumbnails of Plate 2 and Plate 3 makes sketches.*

Plate 5: *Added text (x) to show sketches of thumbnails for plates 1 and 2 in CoralDraw.*

**Plate 6:** *Three different ways to arrange the design in a vertical shape.*

*Plate 7: Three (3) different horizontal layouts of the design.*

Plate 8: Showed the shape and size of the lit box

4.5 **Rough Stage**

The researcher worked on the first sketches by adding some details, like colouring the location icon and the coloured thumbnails to the artwork using CorelDraw and Photoshop. Text was also added to the design of the stage's signs.
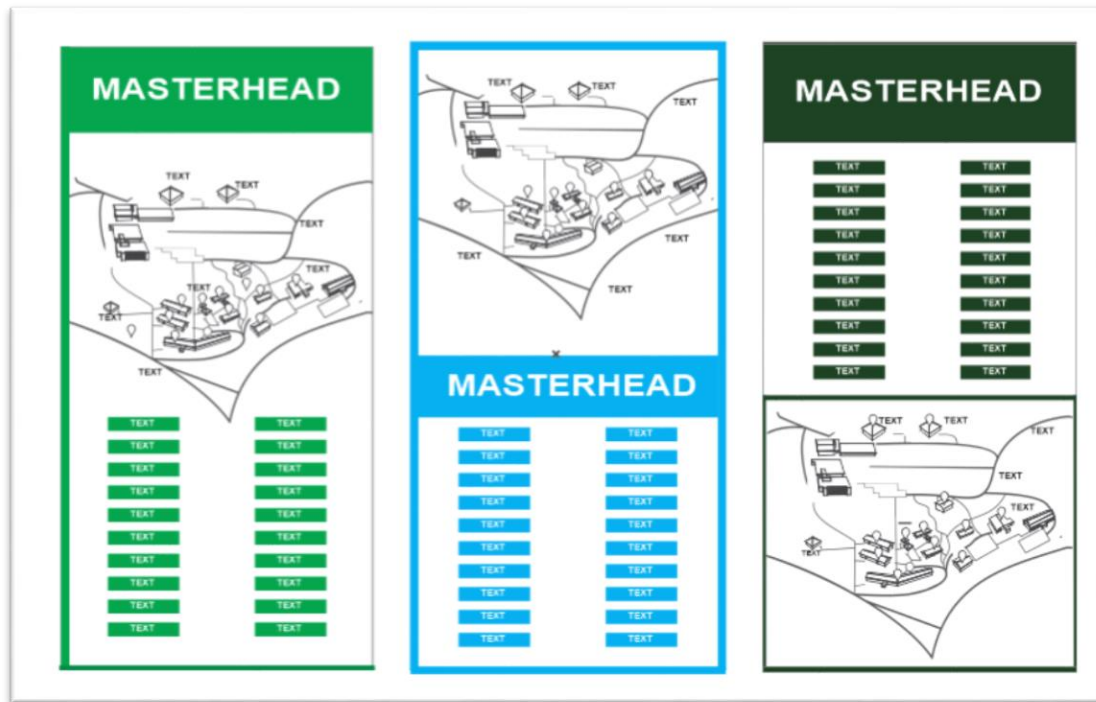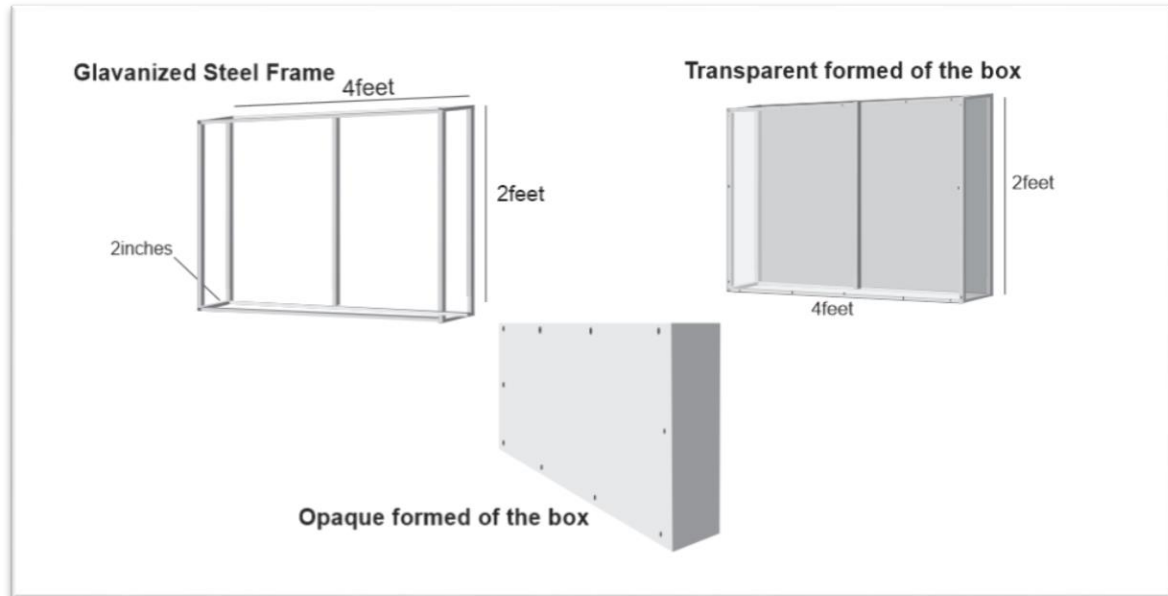

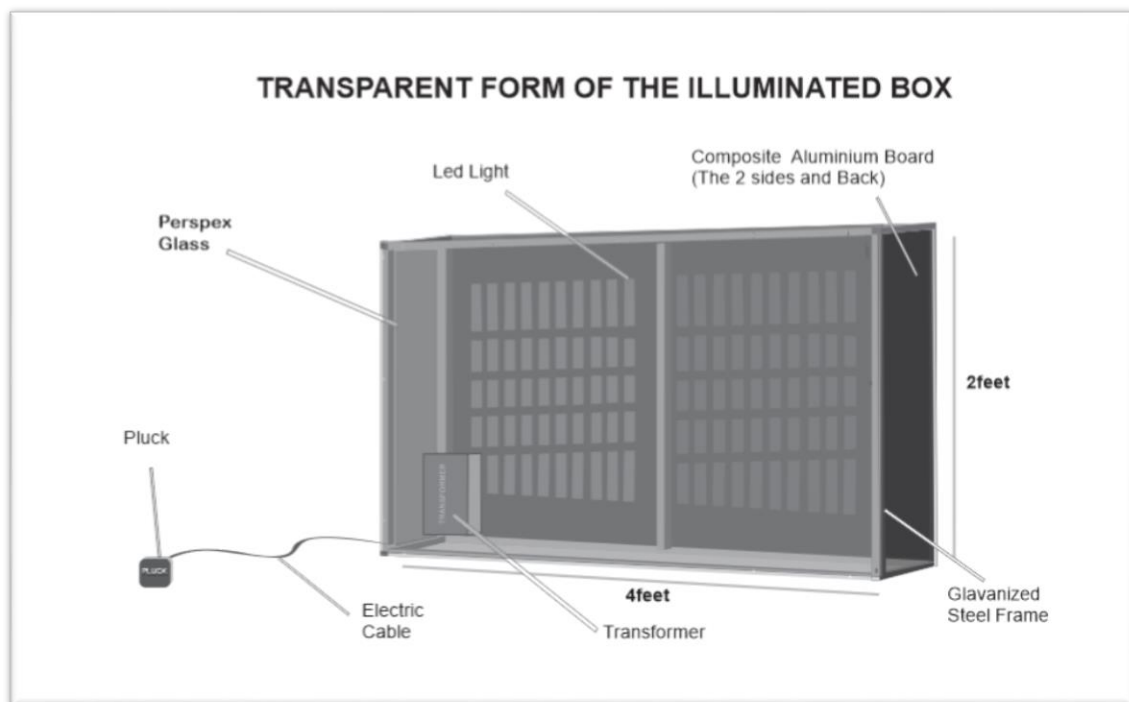*Plate 9*: *Rough colour layouts of the design in a vertical format.*
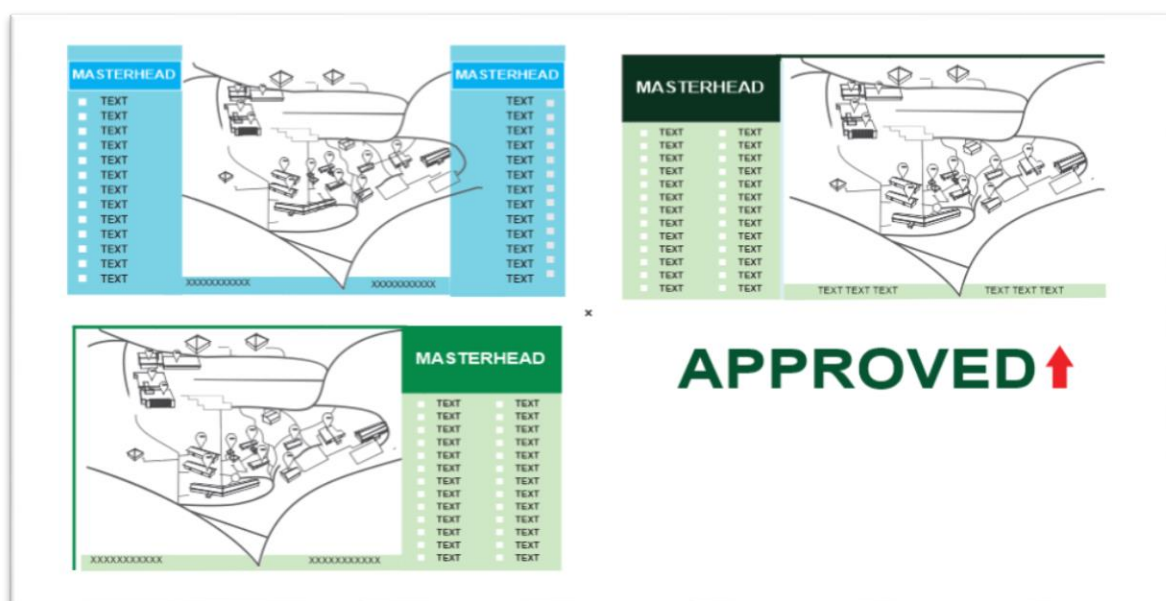
*Plate 10***:** *Roughly colored layouts of the design in a horizontal shape and approved text.*

4.6 Finished layout of the illuminated box

Plate 11*: Sketches of the galvanized metal frame before it is molded*

***Plate 12****: A small drawing of a built lighted rectangular box*

4.7 **Finished Layout of the Design Process**

At this point in the design process, the researcher had a good idea of what the final product would look like. One of the rough layout sketch formats was picked. They also added pretty colours to it to make it easier to see. The design signs were made to look just like the finished signs in every way. The production layout shows the colour, font type, size, and placement of each element, as shown in the figure below.

Plate 13: The structural design of the overview map building is shown with different shapes.
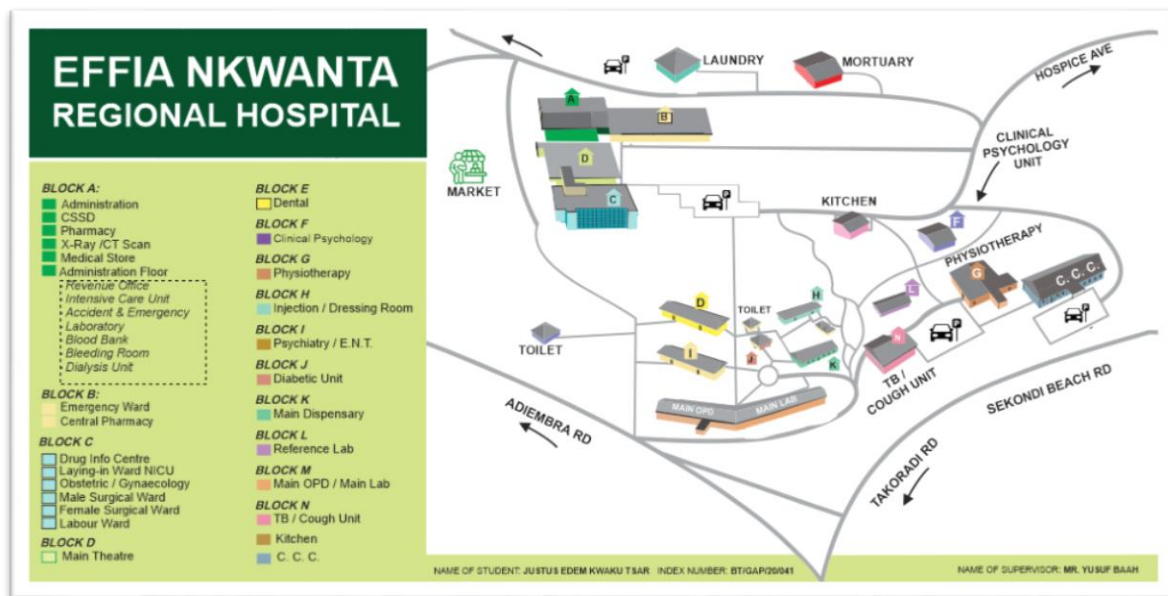
Plate 14: The overview map of the hospital is roughly drawn in colour, and the buildings are shown in an isometric view.

Plate 15. *Completed a detailed, illustrated map of the Effia Nkwanta Regional Hospital.*

Plate 16: *The finished illustrative directional chart in JPEG format (Picture format)*

4.8 The Production Stage

This entails the systematic documentation of the procedures utilized by the researcher to fabricate the directional signage.

4.8.1 Measurement of the structure

Before welding, the researcher used a tape measure and a try-square to measure and cut the 1-inch square pipe into 4 feet long and 2 feet wide pieces.

4.8.2 Presentation of work to the Effia Nkwanta Regional Hospital

Gave the hospital the projected work. This book should have a record of it so that universities or any student who wants to do a similar project in the future can see it.
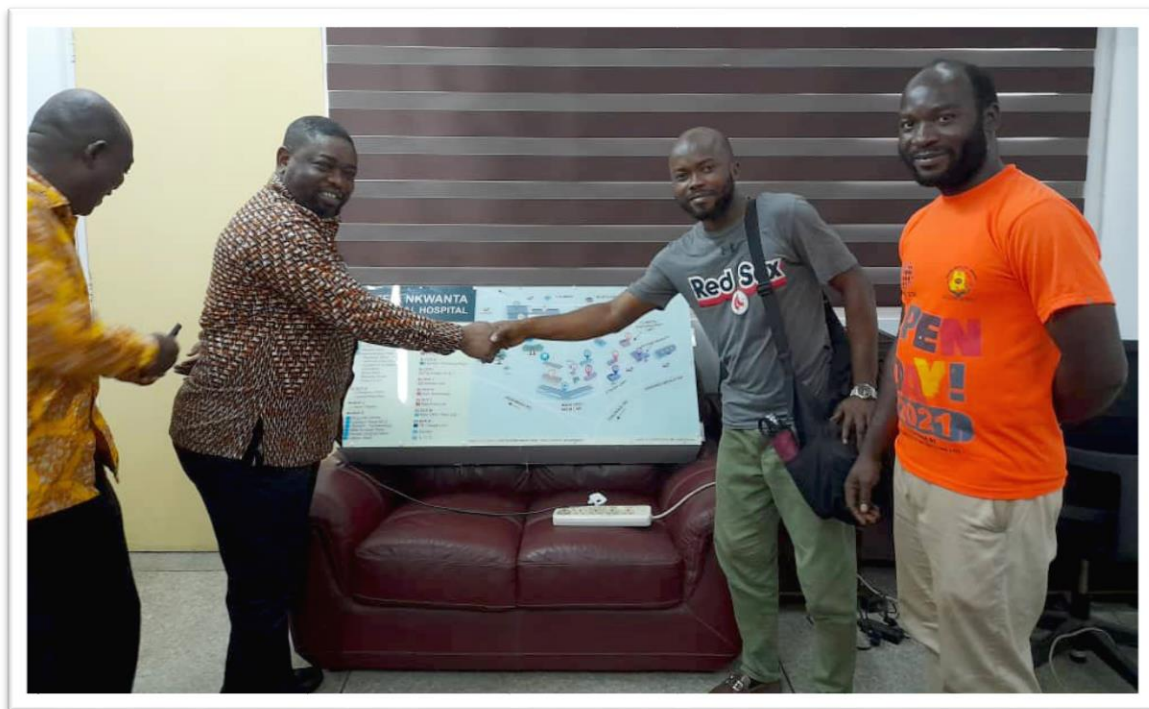

Plate 17: *The Lit-Up Directional Chart was designed to be both practical and pretty.*
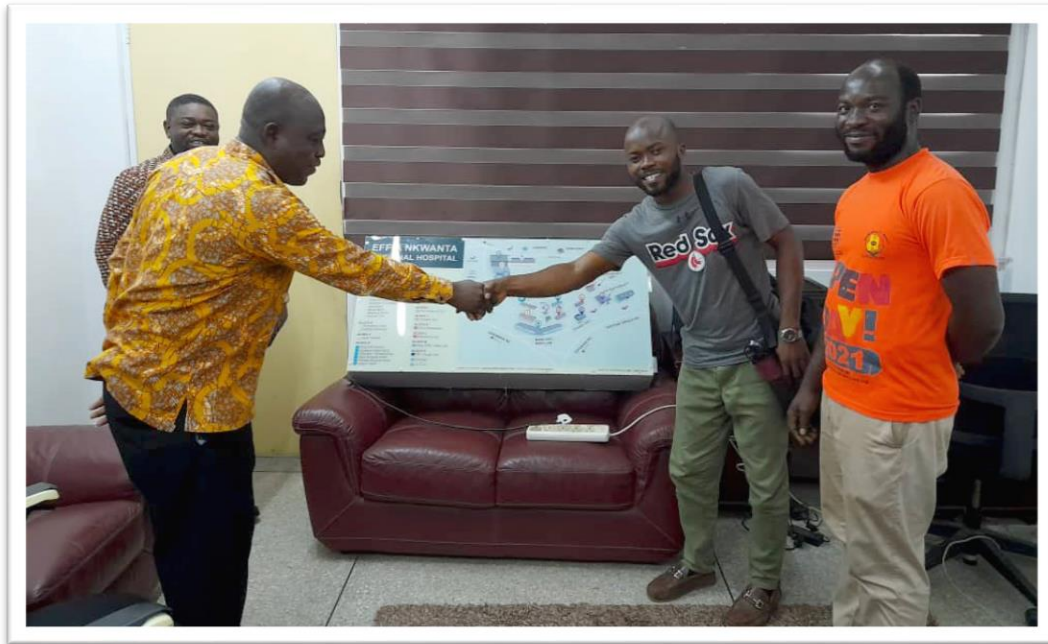
Plate 18: *The researcher took a group picture with Dr. Tambil (the hospital's director), Mr. Sumaila (the estate manager), and Mr. Barnabas (a member of the hospital staff) in Ghana.*

Plate 19*: The researcher showed Dr. Tambil (the director of Effia Nkwanta Regional Hospital) the Directional Chart, which was both illustrative and illuminating.*

Plate 20*: The researcher presented Mr. Sumaila (the hospital's estate manager) the Directional Chart, which was both illustrative and Lit-Up in Ghana.*

4.8.21 **Mounted of the artwork at the location**

Finally, the researcher and three other people from the Estate managing department put the artwork in the right place at Effia Nkwanta Regional Hospital in the Takoradi metropolis.

The tools and equipment used to do the work are a drilling machine, a screw driver, anchor bolts, pliers, a ladder, and an extension board. This is to keep the art in place.

Plate 21: Mounted Lit-Up Directional Chart

Plate 22. *The researcher also constructed signage (4×8) feet post form of the Illuminated Directional Chart to Enhance Wayfinding at Effia Nkwanta Regional Hospital, Takoradi, Ghana.*

4.9 Pre-testing and Evaluation

Making the illustrative and Lit up directional signs for the Effia Nkwanta Regional Hospital, the researcher gave them to the hospital's Estate Manager and the Director of the Effia Nkwanta, Doctor Tambil, and the staff to see if they met their expectations. Of course, the whole staff were very happy to work on this project for the hospital. The researcher also asked all of the staff members at Effia Nkwanta Regional Hospital about their views on Lit up and illustrated directional signs. Based on the positive feedback from the accessible audience, it was determined that the illustrated and illuminated directional chart will assist visitors and individuals who may wish to utilize the hospital's services.

4.10 Appreciation

It is the smart talk about art. Appreciation lets you look at and judge a piece of art without making a judgement about it.
Name of the artist: JUSTUS EDEM KWAKU TSAR
Date: 15th July, 2022
Size of the work: 4×2 feet

4.11 Identify the artwork

The project: ILLUSTRATIVE AND ILLUMINATED DIRECTIONAL CHART
Location of the artwork: The project can be located at Effia Nkwanta Regional Hospital

4.12 **Inventories of the items**

The directional chart that lights up to show the way highlights the different departments and offices of the whole hospital.

4.13 **Technical Qualities**

The materials used for the work are transparent, galvanized 1-inch square pipes, paints, thinner, hardener, Alocoboard, and an electrode. Some of the tools used were a knife-edge finger file, a locking measuring tape, a painting brush, a pencil, a try square, ordinary gloves, an overall, a spraying gun, an electrode holder, a laptop computer, a grinding machine, a digital camera, and a drilling machine. The design was made using a layout that made the work easy and still stood out. Because of the way the artwork was foreshortened, some of the wards or departments appeared larger than others.

The design usually has blocks like "E, F, G, H, I, J, K, L, M" and "N" on the final design made of coral. They used design elements and rules. The artwork also used emphasis and variety as part of the design principle. The artwork is an illustrative and Lit up directional chart, indicating the various departments of the Effia Nkwanta in isometric and oblique view.

Regional Hospital. This will help the visitors and passers-by to identify and locate the various Health departments at the hospital.

4.15 **Costing and Pricing**

The researcher needs to know the project's price and cost. There should be a list of the tools, materials, and equipment used to do the job when determining the cost of goods and services.

The researcher also had the chance to make a list of the items, materials, tools, and equipment he needed, along with their prices, which are listed below:

ITEMS	COST
Galvanized Pipe	GH¢100.00
Welding and Grinding	GH¢100.00
Perspex Glass	GH¢200.00
Transparent Sticker & Printing	GH¢200.00
Painting Materials	GH¢70.00
Aluminum Composite Board	GH¢200.00
Led Light	GH¢100.00
Transformer	GH¢90.00
Spray Paint, Washers	GH¢70.00
Revit Nails	GH¢80.00
Total Cost of Production:	**GH¢1,030.00**

4.16 Presentation and Discussion of Findings

Effia Nkwanta Regional Hospital is difficult for patients and visitors to navigate because there are no lights or signs to guide them, especially at night. When people try to find the hospital's departments, wards, or emergency room, they often get lost. This can make them nervous and take up time. In an emergency, these delays could be appalling because patients might not get the medical help they need right away. Guests also get upset when there aren't clear and easy-to-follow directions. This makes the hospital seem unfriendly and lowers the overall quality of the patient experience.

A directional chart that is lit up and has pictures on it would be easier to see and read at any time of day, making it a clear and easy-to-use guide for everyone in the hospital. The lights would make sure that the information is easy to read and find even when it's dark. Simple drawings and well-placed signs would help people find their way around during the day by showing them where necessary facilities are. This would save time, lower stress levels, and make the whole experience better for everyone by giving patients, guests, and even new hires the confidence to move around the hospital. Patients would feel more at home and less confused in the hospital as a result. The suggested directional chart should include all the parts that hospital visitors are likely to use or look for, enabling them to find what they need quickly and easily. These include buildings that are easy to find, like wards, labs, emergency rooms, and outpatient departments, as well as the roads that connect them. To make it easier for drivers, roads and paths should be shown in a way that is simple and easy to understand. There should also be clear signs for places to park and drop off. You could also use extra features like waiting rooms, reception desks, and restrooms as supporting details.

The chart would serve as a complete guide, making it easy for both new and returning visitors to find their way around. It would do this by putting these parts together in a clear and easy-to-read way.

4.17 Future Direction

In the future, Effia Nkwanta Regional Hospital's lit and illustrated directional chart system can be improved even more by adding digital and innovative technology to make it easier for users and improve the efficiency of operations. Adding interactive wayfinding kiosks, QR codes, and mobile app connectivity could make it possible to get help with navigating in real time, support in several languages, and accessible features that are tailored to each person's needs. Also, data from digital touch points might assist hospital managers figure out how to better organise the space and analyse traffic patterns. This would make sure that the signs still satisfy the needs of users if the facility develops or is renovated.

In addition, future advances could look at eco-friendly design concepts by using materials and energy sources that are more sustainable. Using solar-powered lighting systems and biodegradable or recyclable materials for signs, for example, might help the environment while still being useful. To make sure that the signage system keeps up with changes in technology and the demands of the community, there should also be regular user testing and feedback systems in place. By using these forward-thinking tactics, the hospital may set an example for other healthcare facilities on how to create patient-centered and long-lasting wayfinding systems.

4.18 **More On the Topic of User Experience Design**

The directional chart at Effia Nkwanta Regional Hospital is essential for enabling patients, visitors, and staff get around the hospital quickly and easily. Hospitals can be highly stressful, and not knowing where to go can make matters considerably worse. By following obvious UX design rules, such making things simple, easy to find, and easy to use, the chart makes these problems less of an issue and makes patients happier with the hospital's services.

First, it's easy to see and understand how the information is presented. A clear legend tells you what each block (A–N) accomplishes. This makes it easy for people to understand things because they don't have to read a lot of words at once. Instead, students can hunt for the block letter or colour that matches where they are going. This level of clarity is essential in healthcare settings when time and feelings are essential.

Second, colour coding makes it easy for users to discover the correct department. For example, each medical ward, diagnostic unit, and support service has its own colour. People are less likely to make mistakes and can find things more easily in the building with this way of organising things. Colour association is a brilliant design tool that helps people who can't read well find their way by remembering departments by colour instead of name. It also enables you to see things better.

Third, incorporating photos and icons (such bathrooms, taxi ranks, markets, and mortuaries) makes it much easier for people to find what they're looking for. Even if you can't read or speak English, you can understand icons. This is very significant in Ghana because there are many distinct cultures there. This system fulfils the norms of inclusive design, which means that everyone can use it, even if they can't read or speak English.

The graphic also helps people find their way about by showing where hospital buildings are in relation to outside features like main roads (Takoradi Road, Sekondi Beach Road, Adiembra Road, Ghana) and facilities like a market, a mortuary, and a laundry. This realistic geography makes it easier for users to see where they are on the map. But people who are visiting for the first time can have problems getting around because there isn't an obvious "You Are Here" sign. It would be even easier to understand the map if these kinds of signs were put up at important entrances.

The design is already easy to read because it uses giant letters, bold block labels, and colours that stick out. This guarantees that those with slight visual issues can view it. Adding Braille or tactile maps for individuals who can't see, as well as a digital interactive version that can be accessed by cell phones or kiosks, might make it even easier to get to. But don't forget about how the design makes you feel. The chart seems clean and professional, which makes people believe it.

Using inviting colours like greens, blues, and yellows also makes it less clinical, which is how people usually think of hospitals. A nice, straightforward map design can assist patients who are worried or distressed feel better, which will make their care and experience better for everyone.

The hospital directional chart is a well-thought-out design that puts the requirements of users first, making sure that it is clear, easy to use, and open to everyone. It already performs a decent job of fulfilling its primary goal. Still, adding interactive features, multilingual labelling, tactile aspects, and "You Are Here" signage might make it an excellent wayfinding tool for hospitals and clinics in Ghana and other countries.

5. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Overview
This is the last part of the project work, which includes a summary aligned with its goals and a conclusion indicating whether the academic project work has solved a problem. Also in this part are the endorsements that are based on the results of the design work.

5.2 Summary
The main goal of this project was to plan and create illustrated and lit up directional signs for the Effia Nkwanta Regional Hospital to help people navigate the hospital and locate its various departments and services. This could help with emergencies. The study presents the diverse perspectives of multiple authors on signage, along with the researcher's interpretation of these viewpoints. The project report explains step-by-step how the project was completed and lists the materials and tools needed to install the signs for the Effia Nkwanta Regional Hospital units.

5.3 Conclusion
The design of an illuminated and illustrative directional chart for Effia Nkwanta Regional Hospital will significantly improve navigation by reducing confusion, making staff less dependent, and ensuring that patients and guests get to their destinations faster. Pictograms, bilingual labels, and lighting are used to serve better people of all ages, abilities, and literacy levels. Photo-luminescent and illuminated signs enhance safety and emergency response by providing clear directions even when the power goes out or during an emergency evacuation. By using images and patterns familiar to the culture, the system becomes less intimidating and more relatable, helping users feel less stressed. Even though it costs more up front, the combined strategy is a good and complete way to help people find their way around the hospital. It will last longer, need less maintenance, and be worth more in the long run because of its modular design and energy-saving features.

5.4 Recommendations
The researcher proposes disseminating this study through repositories like the School of Applied Arts, renowned journals, Polytechnic and Universities Library, serving as a resource for future scholarly research. To improve collaboration and get a broader range of opinions, it is suggested that at least two or more researchers work on future projects. To ensure that students acquire practical, industry-relevant knowledge, it is recommended that such research findings be integrated into communication design curricula across all educational levels. Institutions and public libraries should also keep track of these kinds of works in a systematic way so that they are always available. To remain competitive in the modern design industry, outdoor advertising professionals who may lack skills in ICT and contemporary computer graphic design are encouraged to acquire these competencies and integrate them into their work. Post-

secondary institutions, particularly graphic design departments, should take the lead by finding traditional sign writers in different communities and holding regular training sessions on digital design and printing technologies. In this way, the information learnt from this study can help the industry grow and modernize as well as help scholars move forward.

References

1. Abratt, R. and Mofokeng, T. N., (2001), "Development and Management of Corporate Image in South Africa", European Journal of Marketing, Vol. 35, No. 3/4, pp. 368 – 386.
2. Abratt, R., 1989. A novel methodology for the management of corporate image. Journal of Marketing Management, 5(1), pp. 63-76.
3. Amenuka et al. and Harms et al., 1991. The interesting part of design Journal of Signage. The New Encyclopaedia Britannica volume 4 pp.36
4. Argenti, P.A. and Druckenmiller, B.T., 2004. The Corporate Brand and Its Reputation. Review of corporate reputation, 6(4), pp. 368–374.
5. Ashforth, B. and Mael, F., 1989. The organization and social identity theory. Academy of Management Review, 14, pages 20–23.
6. Balmer, J. M. T., 1998. Corporate Identity and the Emergence of Corporate Marketing. Journal of Marketing Management, 14, pp. 963–996.
7. Balmer, J.M.T., 1995. Branding for businesses and being an expert. Journal of General Management, 21(1), pp. 24-46.
8. Balmer, J.M.T., 2001. Corporate identity, branding, and marketing: Cutting through the fog. European Journal of Marketing, 35(3/4), pp. 248-291.
9. Barnett, M. L., Jermier, J. M., and Lafferty, B. A., 2006. Corporate Reputation: The Landscape of Definitions. Corporate Reputation Review, 9(1), pp. 26-38.
10. Barney, J., 1986. Organizational Culture: Is it a potential source of enduring competitive advantage? Academy of Management Review, 11(3), pp. 656–665.
11. Bellis M. 2006. Identity is Destiny: Leadership and the Origins of Value Creation. San Francisco. Berrett-Koehler Publishers.
12. Bernard, H.R., 1995. Anthropology's Research Methods. 2nd edn. London: Sage Publications.
13. Berry, R.S.Y., 1999. Getting information through in-depth interviews. You can find it at www.leeds.ac.uk. [Accessed 2nd of April 2012].
14. Bickerton, D., 2000. The Six Rules of Corporate Branding. European Journal of Marketing, 37(7-8), pp.998-1016.
15. Denzin, N. K., 1989. The Research Act: A Theoretical Introduction to Sociological Methods, 3rd ed. Englewood Cliffs, NJ: Prentice Hall.
16. Kurankye T. (2011). Graphic design for high schools. (Updated Version). Cape Coast: Journal Nyakod Printing Works 15, pp. 20–23