**DEPARTMENT OF COMPUTER SCIENCE**

**the industrial training report carried out at HRI-WEST-AFRICAL**

**BY:**

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AN INTERNSHIP REPORT SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE IN PARTIAL FULLFILMENT OF THE REQUIREMENT FOR THE AWARD OF A BSC IN COMPUTER SCIENCE DEPARTMENT CROSS RIVER UNIVERSITY OF TECHNOLOGY

JULY TO DECEMBAR 2019

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**DECLARATION**

UGWEBE, EMMANUEL OKEM declare that this internship report has been done for the first time and am sure that it has not been produced by any one apart from me and never been submitted to any institution for the same purpose or cause. Signature…………………………….………………… Date………………………………………………

APPROVAL

I have done this work for myself under the guidance of the following supervisors.

Mr. PRINCE ANNA (IT CO-ORDINATION)

Signature…………………………………. Date……………………………….

**DEDICATION**

I dedicate this internship report to God almighty and to HRI-WEST-AFRICA Ltd for allowing me to undertake my industrial training under their company. I also dedicate it to my beloved parents, guardians, brother, sisters and to everyone in his/her capacity for their support during my internship may Almighty GOD reward them abundantly.

**AKNOWLEDGEMENT**

I would like to extend my sincere gratitude and appreciation to all those who joined all their efforts in making my internship training successful. Special thanks goes to my Academic and Field supervisors for their excellent work done during my internship training. I particularly thank my parents and guardians for their endless support they have rendered to me in my academic journey and May GOD Bless them throughout their LIFE. In regards to the industrial training I have been doing, sincerely express my appreciation to the Almighty GOD who enabled me to finish the work, my parents for the financial support, the lecturers that gave the advising to go to the best place for internship which is HRI-WEST-AFRICA Ltd, and not forgetting my fellow course mate that we did our industrial training in HRI-WEST-AFRICA. May ALMIGHTY GOD BLESS YOU ALL.

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**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| **Abbreviation** | **Description** |
| ICT | Information and communication technology |
| VOIP | Voice over internet protocol |
| HRI-West-Africa | Health Resource Information West Africa |
| ADDS | Active Directory Domain Service |
| DNS | Domain Name Service |
| MIT | Masters in information Technology |
| HDMI | High Definition Multimedia Interface |
| DVD ROM | Digital versatile disc-read only memory |
| XML | Extensible Markup Language |
| HTML | Hyper Text Markup Language |
| Db | Database |
| UI | User Interface |
| POST | Power On Self-Test |
| CPU | Central processing Unit |

**ABSTRACT**

This practicum report is evident that the Internee carried out his internship at Web Info-Net Ltd. The internship program was intended to enable student develop skills in the application of theoretical knowledge into practical situations and to get more experience in the field, in preparation to enter full time employment in areas of specialization. Chapter one focuses on the background of the organization, objectives of WIN, vision, mission, core values, functions of WIN, address & location of the organization, objectives of internship training, scope of internship, duration, structure of organization and completed IT project Contracts. Chapter two focuses on major activities carried out in the department of ICT that is Computer Hardware assemble and dissemble, Computer Servicing, Repair & Maintenance, Windows 8 operating systems, Networking, Windows Server Administration, Data & Network Security, Database management & Installation, Programming, Web designing, Android application development and Linux server & desktop Installation and Administration. Chapter three focuses on knowledge and skills gained, internship project, interesting experiences, relationship with other staff and the techniques used during internship that were discussions, practical, team work and tasks.

Chapter four focuses on the challenges faced during internship. Chapter five focuses on the recommendations and conclusion both to the University and also to organization.

**CHAPTER ONE**

**INDUSTRIAL TRAINING**

Industrial Training is an academic program designed to expose and prepare students in their various academic disciplines, with a view to systematically enhance the acquisition of related experience, practical skills and general know-how.

**HISTORY OF SIWES**

SIWES was established by ITF (Industrial Training Funds) in the year 1973 to solve the problem of lack of adequate proper skills for employment of tertiary institution graduates by Nigerian Industries. The Students’ Industrial Work Experience Scheme (SIWES) was founded to be a skill training program to help expose and prepare students of universities, polytechnics and colleges of education for the industrial work situation to be met after graduation. This scheme serves as a smooth transition from the classroom to the world of work and further helps in the application of knowledge. The scheme provides students with the opportunity of acquainting and exposing themselves to the experience required in handling and managing of equipment and machinery that are usually not made available in their institutions.

Before this scheme was established, there was a growing concern and trend noticed by industrialists that graduates of higher institutions lacked sufficient practical background for employment. It used to be that students who got into Nigerian institutions to study science and technology were not trained in the practical know-how of their various fields of study. As a result, they could not easily find jobs due to the lack of working experience.

Therefore, the employers thought that theoretical education going on in higher institutions was not responsive to the needs of the employers of labour. This was a huge problem for thousands of Nigerians until 1973. It is against this background that the fundamental reason for initiating and designing the scheme by the fund in 1973/74 was introduced.

The ITF organization (Industrial Training Fund) made a decision to help all interested Nigerian students and established the SIWES program. It was officially approved and presented by the Federal Government in 1974. The scheme was solely funded by the ITF during its formative years but as the financial involvement became unbearable to the fund, it withdrew from the scheme in 1978. In 1979, the federal government handed over the management of the scheme to both the National Universities Commission (NUC) and the National Board for Technical Education (NBTE).

Later, in November 1984, the federal government reverted the management and implementation of the scheme to ITF. In July 1985, it was taken over by the Industrial Training Fund (ITF) while the funding was solely borne by the federal government. (Culled from Job Specifications on Students Industrial Work Experience Scheme).

**General Objectives of SIWES**

SIWES is strategized for skill acquisition. It is in fact designed to prepare and expose students of universities, polytechnics and colleges of education to the real-life work situation they would be engaged in after graduation. Therefore, SIWES is a key factor required to inject and help keep alive industrialization and economic development in the nation through the introduction and practical teaching of scientific and technological skills to students. (Culled from Detailed Manual on SIWES Guidelines and Operations for Tertiary Institutions). Objectives of the Students Industrial Work Experience Scheme include:

1. Provide an avenue for students to acquire industrial skills for experience during their course of study
2. Expose students to work methods and techniques that may not be available during their course of study.
3. Bridging the gap between theory and practice by providing a platform to apply knowledge learnt in school to real work situations
4. Enabling the easier and smoother transition from school by equipping students’ with better contact for future work placement
5. Introduce students to real work atmosphere so that they know what they would most likely meet once they graduate.

**IMPORTANCE OF SIWES**

All Nigerian students who study technology and science must know about SIWES. Partaking in SIWES as become a prerequisite for the award of diploma and degree certificates in many Nigerian Institutions according to the Nigerian government Educational policy. Undergraduate students of the following disciplines are expected to be a part of the scheme: Natural sciences, Engineering and Technology, Education, Agriculture, Medical Sciences, Environmental, and pure and applied sciences. The duration is for four months and one year for polytechnics and colleges of education students respectively and six months for university students.

**CHAPTER TWO**

**INTRODUCTION BACKGROUND OF THE COMPANY**

This internship was carried out at HRI-West-Africa Ltd. HRI-West-Africa Ltd is a private limited Health Information and IT Solution company. Founded in 2002 by seasoned Medical and IT professionals. They carry out training, consultancy services and supplies to educational institutions, Government organizations, Private companies and individuals. HRI-West-Africa Ltd has been prequalified by over 50 big organizations in Nigeria, and it has completed several projects spnaing IT and health related services including Networking and software developments. HRI-West-Africa Ltd has offered Internship training to over 1000 students from different universities and these include Cross River University of Technology, University of Calabar and others.

Some of the Objectives of the HRI-West-Africa Ltd is to carry out consultancy services in information technology, enterprise network, office automation and servicing / supply of equipment’s and consumables. They also Provide data and records management services, IT security, firewalls, training, and IT user skills. They Conduct research in co-temporally issues affecting the society and coming up with IT solutions to help them mitigate their problems.

**Functional departments in HRI-West-Africa Ltd**

NETWORKS:

They offer home and office networking, web hosting, Network certification, server configurations. They also offer Networking solutions such as LAN & WAN configurations, Network troubleshooting, Network installations and internet configurations.

SOFTWARE DEVELOPMET

They design dynamic websites with content management systems

They offer reliable web and data applications hosting solutions.

They offer options of shared or dedicated, virtual or physical servers, Linux or windows.

Maintenance

They carry out computer upgrades, maintenance and repairs, Backup and recovery, software installation, computer virus protection, service, scanning and spyware removal

Specific objectives of the organization They Carry out consultancy on information technology, enterprise network, office automation and servicing / supply of equipment’s and consumables therefore. They Provide data and records management services.

The internee was trained in a number of areas that is to say Computer Hardware assembling and dissembling, Linux Installation and Administration both Desktop and Server, Database management Installation, Windows Operating System Installation, Web designing, Networking, Windows Server Installation and Administration, Data & Network Security, Programming, Android App Development, Repair & Maintenance, Computer Servicing with an aim of enhancing the internee’s capabilities and boosting his skills in all areas of computer science and information technology.

**Duration**

This practicum was carried out at HRI-West-Africa Ltd from 1st /July /2019 to 1st /December/2019.

**Name of the organization**

HRI-West-Africa Ltd Nigeria

**Location and address of the organization Address:**

HRI-West-Africa Ltd.

**Physical location**:

Head offices Plot 63 etta-agbor road,

P. O. Box 21156 etta-agbor‐calabar

Phone number :+256‐414‐691425

<http://www.hriwestafrica.com>

<http://www.hriwestafrica.org>

Email: info@hriwestafrica.com

**Vision**

“To Meet Each Client’s Business Vision- is our mission.”

**Mission**

To provide and facilitate the delivery of quality, sustainable, customer oriented services efficiently and effectively. To consistently create value for our stakeholders, by providing solutions which enable our customers to achieve excellence and sustainable competitive edge with emerging technologies in IT fields

**Core Values Innovation:**

Flexibility is the key to our offerings, and intrinsic to this flexibility, is the spirit of Innovation that we bring to our products and services from the very stage of design to implementation and customer support.

**Insight:**

At HRI-West-Africa Ltd, we have always prided ourselves on the vision, skills, expertise and professionalism of our team. Our team members make use of their keen Insight to foresee industry trends and meet demanding customer needs.

**Integrity:**

At HRI-West-Africa Ltd, we look at the Core Value of Integrity as the very soul of our company. This is reflected in its finances, the trusted relationship that we share with our customers and business partners, and the faith reposed in them by their stakeholders.

**Completed IT Project Contracts.**

Repairing Cross River University of Technology main software lab,

Local Area Network SDV Transmit-LAN and fiber Installation & UPS Back-Up System Fiber Installation at Cross River University Of Technology,

Maintenance and Repair of IT Equipment at Electricity Regulatory Authority (ERA) Ministry of Education-software, Computer Maintenance & repairs Micro Finance Support Center- Computer Maintenance & repairs. Ministry of ICT - IT Supplies & Services Ministry of Tourism- Maintenance of Generators & printers.

**Objectives of the internship**

To gain exposure in the working environment To obtain practical skills To learn how to handle administrative roles. To create a good relationship with different people in the field of computer science and information technology

**HRI-WEST-AFRICA LTD ORGANIZATIONAL STRUCTURE**

Networks

Research

Work Shop

Training

ICT

Board Of Directories

Management

Computer

Cafe

Software

Maintenance

**CHAPTER THREE**

**INTRODUCTION TO COMPUTERS**

Switched off the power supply from the wall socket and detached the power cable from both the Source and the SMPS at the back of the CPU cabinet and then removed the remaining externally connected device that were keyboard, mouse and monitor from the back of CPU cabinet, then after removed the CPU cabinet cover by unscrewing screws at the back of the CPU and slide the cover about an inch and lifted it off.

Detached the internal cables from their Source and Uninstalled internal cards

Removed Hard Disk Drive, CD/DVD drives from the Source

Removed the RAM from its slot

Removed the power supply

Detached the motherboard from the CPU cabinet by unscrewing screws, removed the CPU fan from the motherboard, removed the processor from the processor socket of the motherboard. (FIGURE 1).

ASSEMBLING THE COMPUTER SYSTEM Mounted the processor in the processor socket on the motherboard gently, attached the CPU fan on top of the processor screwed it on the motherboard fixed vertically in the CPU cabinet and screwed fixed the power supply at the top back end of the cabinet and screwed it. The power connectors for motherboard and CPU fan power supplies were connected. the cabinet cooling FAN fixed and screwed at the back end grill of the cabinet and its power connector connected from SMPS.

The CD/DVD drive was fixed at the top front end of the cabinet and screwed, the HDD and floppy disk drives fixed below CD/DVD drive and screwed without any vibration in either of them and selected the appropriate data cable and connected each cable to its drive socket and another end at its appropriate connector on the motherboard.

Mounted the memory modules on the motherboard by aligning the RAM to its slot on the motherboard and pressed it downward, fixed the internal cards to their sockets and attached power cable to it, Covered the CPU cabinet by placing its cover and pressed it towards front side and screwed it.

Connected the external devices with CPU at their appropriate sockets. These includes mouse and keyboard, Monitor, Connected the power cable to the back of CPU in SMPS. Plugged into the power cable on the wall socket. (FIGURE 1).

BIOS SETTINGS To enter the BIOS Setup utility, rebooted the computer system and pressed F2 key on power-on self-test. When BIOS was started the main BIOS Setup utility top-level screen appears . This screen provides seven menu options across the top of the screen

**WINDOWS OPERATING SYSTEM INSTALLATION**

Insert a windows oparating installation DVD into the DVD/CD drive and pressed F12 key on the keyboard to enter the bios menu, select the boot media that is in the cd/dvd.

The screen displayed the message to press any key to boot from cd/dvd and pressed, choose the language clicked next to start the installation, clicked next to input the activation product key and accepted the EULA, selected the version to install clicked next

It copied the windows files, got files ready for installation, installed features, updates and finished the installation process.

**REPAIR AND MAINTENANCE COMPUTER TROUBLE SHOOTING**

Looked at common computer problems and how to solve them that were unnecessary rebooting, Blue screen, PC lights but no display, overheating, RAM problems, Keyboard failure and Beep codes

**COMPUTER SERVICING**

Looked at how to handle clients’ computers and used tools like towel, blower and brush.

**WINDOWS SERVER INSTALLATION AND ADMINISTRATION**

Insert the Windows Server installation DVD in the DVD/CD drive, on post pressed F12 for the boot menu and selected the boot device, the installer runs, the Installation Windows screen appears.

Selected the language and other preferences, Clicked Next and Clicked Install now. The setup began.

Selected Windows Server 2008 Enterprise and clicked Next.

Read the license terms and checked “I accept the license terms” and clicked Next.

clicked Custom (advanced) selected the hard disk where to install and clicked Next, the installation began, the installer prompted me to change the password. Clicked OK.

Entered a new password, re-entered the password to confirm it, and clicked the right-arrow

After clicked OK on the confirmation screen, the operating system prepares your desktop, the Initial Configuration Tasks window appeared by default. Windows Server was now installed. Windows Server prompted for activation information, Entered the Product Key and clicked Next to finish the activation.

**DOMAIN CONTROLLER CONFIGURATION**

Clicked on the initial configuration task window that appeared by default on completion of the windows server 2008, clicked the add role and went to the add roles wizard where I selected ADDS clicked Next and it was installed.

And when configuring DNS, I went to Run and typed “dcpromo” command and clicked ok selected create new domain in a forest clicked Next, entered the preferred name for the domain ending with ‘.com’ selected the version of windows server entered password and my DNS was installed.

**VOIP AND SIP**

To enable on VOIP on the server first installed Microsoft .NET Framework 3.5 Offline Installer then installed office sip-server 3.5, office sip messenger and office sip softphones to enable easy communication between clients and the server.

**PROGRAMMING**

**ANDROID APP DEVELOPMENT**

Installed JDK and created its path by going to computer properties clicked advanced system settings, went to environmental variables and clicked, the environmental variables windows appeared then went to the system variables and edited path so that to configure the java environment which would help to run the ADT on the eclipse and clicked ok three times after I went to CMD to confirm the java path and typed java c.

Sent eclipse shortcut to the desktop, right clicked the eclipse shortcut the option menu appeared and selected open to run the adt.

When the adt opened, went to the top level menu and clicked on the windows the option appeared and clicked on show view, the option menu appeared, selected package explorer so as to create the workspace for android app development.

After creating the workspace, went to the top level menu, clicked on file and option menu appeared, selected New the option menu appeared and choose Android Application Project.

New Android Application window appeared that required me to enter Application Name, Project Name and Package Name for the application.

**ANDROID PROGRAMMING LANGUACHES I LEARNT**

JAVA

JAVASCRIPT

**WEB DEVELOPMENT**

Installed a text editor or any IDE for web programming, like Microsoft Visual C++ 2012 redistributable, Visual Code, Notepad++ and also a local server like wamp server, xampp server then started any of the local server which you have installed successfully by clicking on the server icon on the task bar and the option menu appeared, clicked on localhost that was ran by google chrome which was the browser on my machine by default.

When the word localhost appears in the browser clike on phpMyAdmin and it will take you to the database, created new database give it any name you wish or the name of you project topic. Then locate your local Disk **C** of your computer opened the wamp or the xampp folder, in the wamp or xampp folder open the www folder if you are using wamp but if you are using xampp open the htdocs folder and then create your project folder for work to start.

**WEG PROGRAMMING LANGUACHES I LEARNT**

1. HTML
2. CSS
3. JAVASCRIPT
4. PHP

**NETWORKING**

**TERMINATION OF ETHERNET CABLES**

First corrected the equipment’s to be used in the process and they were crimping tool, cable snips, RJ45 connectors and UTP CAT6 cables, Used the cable snip to cut outer cable cover jacket from each cable at its end, aligned the wires in order that was white green, green, white orange, blue, white blue, orange, white brown and brown for standard A which was arranged at both ends of the cable.

Then fixed the cable into the RJ-45 connector firmly with appropriate force to ensure that wires are seated at the end of the RJ-45 connector channels, then inserted the RJ-45 into the crimping tool to bond RJ-45 connector with the wires so that the wires do not become misaligned. while crimping the connector the aim was to push the copper conductors down to the wires and the plastic tab applied some energy until I heard a click that confirmed me that the copper tabs were seated properly, then inspected the cable with Ethernet cable tester to ensure that the connector was properly terminated to the cable.

**SITE SURVEY AND DESIGN**

Started by moving around the company to see how the network was designed and arrangement of computers and tables in all the laboratories then tasked to design the network of all laboratories of the company from the survey made and make its bill of quantity for the gadgets that were used, also tasked to draw the network design of my university and make its bill of quantity basing on the prices I had got (tables 2, 3&4) and (FIGURE 19) & (FIGURE 20).

A challenge was found in getting the prices in town since Indians ICT shops were not willing to tell the prices of the different equipment’s. used Microsoft Visio to design the network designs.

**SWITCH AND ROUTER CONFIGURATION**

Configured switches and routers in packet tracer.

**MULTIPLE VLAN CONFIGURATION**

Configured multiple vlans packet tracer. Configured a network with three VLANS and ensured that they communicated, started by creating VLANS and assigning them ports on the switches then configured the router encapsulation and the router rip commands for the DHCP which assigned them IP addresses automatically.

**VOIP CONFIGURATION**

Configured VoIP in packet tracer. configured a network that had IP phones and computers connected and communicating.

**DATABASE INSTALLATION AND ADMINISTRATION**

Installed visual studio ultimate 2012 after installation, opened it and clicked new project to create project, named and clicked ok, then changed the form name, back color and window state to maximum. Designed a user interface in visual basic, that can be used to enter the students’ details, marks obtained in the exams per semester and stored in the database and designed menus in it.

**NETWORK AND DATA SECURITY**

Looked at cyber and PC security.

**CYBER SECURITY**

Elements of cyber security included application security, information security, network security, disaster recovery, operational security, end-user education.

Goals of security were prevention, detection and recovery.

Cybercrimes that were discussed were Hacking, Child pornography, Denial of service or attack, Virus dissemination, Computer vandalism, Cyber terrorism, Software piracy, Credit card theft, Electronic bullying and stalking, Identity theft and Network intrusion. Among those the focus was put hacking which was ethical.

**CHAPTER FOUR**

**CHALLENGES FACED DURING INTERNSHIP**

Difficulties in Feeding and transportation to and from the internship station on a daily basis. Due to minimum time, some sessions like website development, database management and Linux Administration were given less time yet they needed a lot of time if we were to gain from them and on top of that they had to pass through them.

Long distance, I travelled a long distance to attend the internship sessions but I endeavored to cope up because I had to make sure I was at the company in time so that I never missed out on all the training activities of the day.

During my internship I encountered difficulty in adjusting to the new environment. Traffic jam was a serious challenge when going to the training station and coming back.

**TECHNIQUES USED DURING INTERNSHIP TRAINING**

Discussions During my internship Mr. Thomson Innocent, Mr. James and Mr. David were my field supervisors. The interaction between me and them was really good. I talk freely with them and communicate my challenges and problems which they would try to deal with accordingly. They were generally approachable and friendly and gave me more insights into the IT professional skills, as well as making sure that i become professional in IT. I used to discuss with my fellow internees that is Indifreke, Peace, Omang, and others about the assignments and how to go about our practical since training at HRI-WEST-AFRICA LTD is basically hands on, it improved and enhanced my skills in computer science and information technology so much. Therefore, with this exposure, I gained a lot especially in practical areas Team work, The internee did all the work with their colleague and when they failed they consulted from their trainers from the beginning of internship until its duration.

Tasks During the internship training at HRI-WEST-AFRICA LTD, a lot of tasks were assigned in order to improve on practical skills like doing of assignments, this helped improve my skills on how to approach people and now how things move on in the field

**KNOWLEDGE AND SKILLS GAINED IN INTERNSHIP TRAINING**

During the internship training I acquired a lot of knowledge and skills from experienced personal.

**Knowledge**

Web development, this was through creation of web page and hosting it to the website Programming, through design of systems, learnt more about object-oriented languages such as java in php, javascript and java itself.

Technical Support, through repairing clients’ computers and troubleshooting some common problems that they were having

**Skills**

Computer competency, critical thinking, clear written and spoken communication, gained business skills, time management, problem solving.

**INTERESTING EXPERIENCES**

**PROJECT DESIGN**

**Wireless connectivity**:

Tools use to wire network:

Cat5

Cat6

Cat9 wires.

Also networking has so many networking tools to mention but a few

1. Switches
2. Rj45
3. Cables

**Switches:** bellow is different types of switches

1. 4pot switches
2. 8pot
3. 12pot
4. 16pot
5. 24pot
6. 48pot

**Interaction with experienced people in the field**

Discuss with future potential employers and gain insight into the types of employees they look for. This made me realize the greatest value of internship which was providing a unique and exciting experience.

**Working with experienced and more skilled individuals**

Working with some of the best developers, designers and managers in information technology system, created bond with other internees which was so perfect solving problems that are never face in the university environment.

**CHARPTER FIVE**

**RECOMMENDATIONS AND CONCLUSION**

To the organization I would like to recommend to the management of the HRI-WEST-AFRICA LTD to expand the training sessions for Linux Administration and Database management. I would like to encourage students to carry out their internship at HRI-WEST-AFRICA LTD in order to avoid regretting in future because the management is social reachable and are good wishers of all students.

**To the university**

The university should take time and call the students and inform them about their supervisors than students struggling calling their heads of departments asking for their supervisors.

The university should provide materials for study purposes especially in hands on training to computer science and information technology department.

University needs to set up the internship allowance scheme to provide internees with the money they would use in the course of their internship training to encourage and motivate the internees.

**CONCLUSION**

I conclude by giving my sincere thanks to the Merciful GOD who has enabled me go through this internship training successfully and the management of the HRI-WEST-AFRICA LTD for the excellent work done. I wish anyone in the field of Computer Science not to miss out on the services provided by HRI-WEST-AFRICA LTD because students acquire whatever skill is needed in the field of working. Internship training has enabled me to gain new insight and more comprehensive understanding about the real information technology skills such as networking, troubleshooting, software installation, information security, website development among others and this training provided me with the opportunity to develop and improve my personal skills, know how to deal with different people. Therefore, it has been so interesting, helpful and challenging. And I don’t regret having trained at HRI-WEST-AFRICA LTD.

**REFERENCES**

HRI-WEST-AFRICA LTD.

Physical location: **5A NKONIB LAYOUT BEHIND INEC M.M. HIGH WAY CALABAR**

Phone : **08033183236, 08023124568**

**WEBSIT**

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Email: info@<http://www.hriwestafrica.com>