A

TECHNICAL REPORT

ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

AT

DAVE LAW TECHNOLOGIES NIGERIAN LIMITED 216 IBRAHIM TAIWO ROAD ILORIN KWARA

BY

RAJI MUSTAPHA RAMADAN

MATRIC NO: ND/23/EEE/PT/00168

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ELECTRICAL AND ELECTRONICS ENGINEERING

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DEDICATION

I dedicate this report to God who gave me the grace and strength to finish my SIWES program successfully and my parents who helped in providing all the necessary resources

ACKNOWLEDGEMENT

I acknowledge the entire institution and staff of the Department of Electrical and Electronics Engineering, Kwara state polytechnic, Ilorin. Through their efforts, I gained theoretical knowledge translated into practical aspects.

I wish to take this opportunity to thank the host company Dave Law Nigerian Limited, for making my industrial training experience with them a distinct one. I am grateful to the Technical engineers, my supervisor, Head of technical engineers – Engr. David Lawal, who provided me with timely assistance and valuable guidelines that helped me seamlessly traverse through my overall training experience. I express gratitude to the staff of every department at DAVE LAW whose guidance and support encouraged me to delve deeply into process details. And to every single individual who contributed to my growth and professional development in various ways during this period. I say a very big “thank you”.

This acknowledgment will remain incomplete if I fail to express my deep sense of obligation to God and my parents for their consistent blessings and encouragement during the training period.

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Report Overview

This report provides a comprehensive account of my Student Industrial Work Experience Scheme (SIWES) at the Dave Law Technologies Nigerian Limited. The program offered hands-on exposure to electrical engineering practices across various technical departments, including Solar Panel, Solar Panel Components, Solar Energy Application, Solar Energy Benefits and Solar Energy Policies.

The report outlines my learning journey through tasks such as electricity monitoring, high-voltage operations, relay testing, mechanical maintenance, and fault management in underground cables. It also highlights challenges encountered, such as resource constraints, high-voltage safety risks, and communication gaps, and provides recommendations for improving future SIWES experiences at Dave Law Nigerian Limited.

This experience not only strengthened my technical skills but also deepened my understanding of the essential safety protocols and collaborative practices required in the electricity power industry. The report concludes with reflections on how this program has prepared me for a professional engineering career, equipped with practical skills and industry insights.

CHAPTER ONE

INTRODUCTION

1.1BACKGROUND

The Industrial Training Fund established by decree 47 was introduced in 1971, vis-à-vis the birth of the Students Industrial Work Experience Scheme (SIWES) the same year by the Federal Government of Nigeria (FGN). It is an integral part of the requirements for the award of Certificates, Diplomas, and Degrees in higher institutions of learning i.e. Colleges of Education, Polytechnics, Universities, etc. Student Industrial Work Experience Scheme (SIWES) exposes students to industry-based skills necessary for a smooth transition from the classroom to work environments. It accords students of tertiary institutions the opportunity to familiarize themselves with the needed experience in handling machinery and equipment which are often found in such an educational institution.

1.2 SCOPE OF SIWES

SIWES is a skills acquisition program geared towards the nation's technological development. The SIWES scheme's major aim is to bridge the gap between classroom learning and theoretical experience, guaranteeing that students not only see practical answers to every subject but also comprehend the workings of the labor market, ensuring that they are quickly absorbed into it.

VISION: To be the foremost human resource development institution in providing dynamic, need-based knowledge and quality-driven intervention for industrial skills development in Nigeria and one of the best in the world

MISSION: To set and control standards of excellence, and effectiveness and offer direct training of Professionals, technicians, technologists, and entrepreneurs to meet the human resource needs for rapid industrialization and sustainable economic development of Nigeria, by using best-of-breed training techniques and modern technology to produce highly motivated and competent products

1.3 OBJECTIVE OF SIWES

SIWES is aimed at providing skills for students in their various fields. Some of the various objectives the program put in place include;

- To solve the problem of inadequate practical skills, preparatory for employment in industries by Nigerian graduates of tertiary institutions.
- To provide students with relevant practical experience
- To familiarize students with typical environments in which they are likely to function professionally after graduation.
- To enlist and enhance industry involvement in university education.
- To promote and encourage the acquisition of skills in industry and commerce, with a view of generating a pool of indigenous-trained manpower sufficient to meet the needs of the economy.
- To provide access to equipment and other facilities that would not normally be available in the University workshop.
- Provide students with an opportunity to apply their knowledge in real work situations thereby bridging the gap between theory and practice
- To change the orientation of students towards the labor market when seeking jobs.

CHAPTER TWO

2.1 DESCRIPTION OF ESTABLISHMENT OF ATTACHMENT

The establishment of the Dave Law Nigerian Limited is rooted in the efforts to reform the power sector to enhance electricity supply. This reform was initiated through the Electric Power aimed at restructuring and encouraging private sector involvement in the power industry.

The Dave Law Nigerian Limited, was unbundled into several independent entities focusing on Monocrystalline, Polycrystalline, And Biohydbrid Solar Panel. This unbundling was designed to decentralize power management, improve efficiency, and attract private investment into the sector.

Dave Law Nigerian Limited is organized into various skills such as, Physical Conditioning, Electrical Systems, Safety Codes, Customer Service, and Solar modules. These departments work collaboratively to manage the distribution infrastructure, respond to service disruptions, plan future network expansions, and ensure customer satisfaction. As a distribution company, Dave Law also plays a crucial role in connecting customers to the national grid, ensuring that electricity supply is consistent, and conducting maintenance on distribution lines and substations.

2.2 Location

Dave Law Nigerian Limited Is Located At Ibrahim Taiwo Road Ilorin Kwara State

2.3 DAVE LAW Organizational Structure

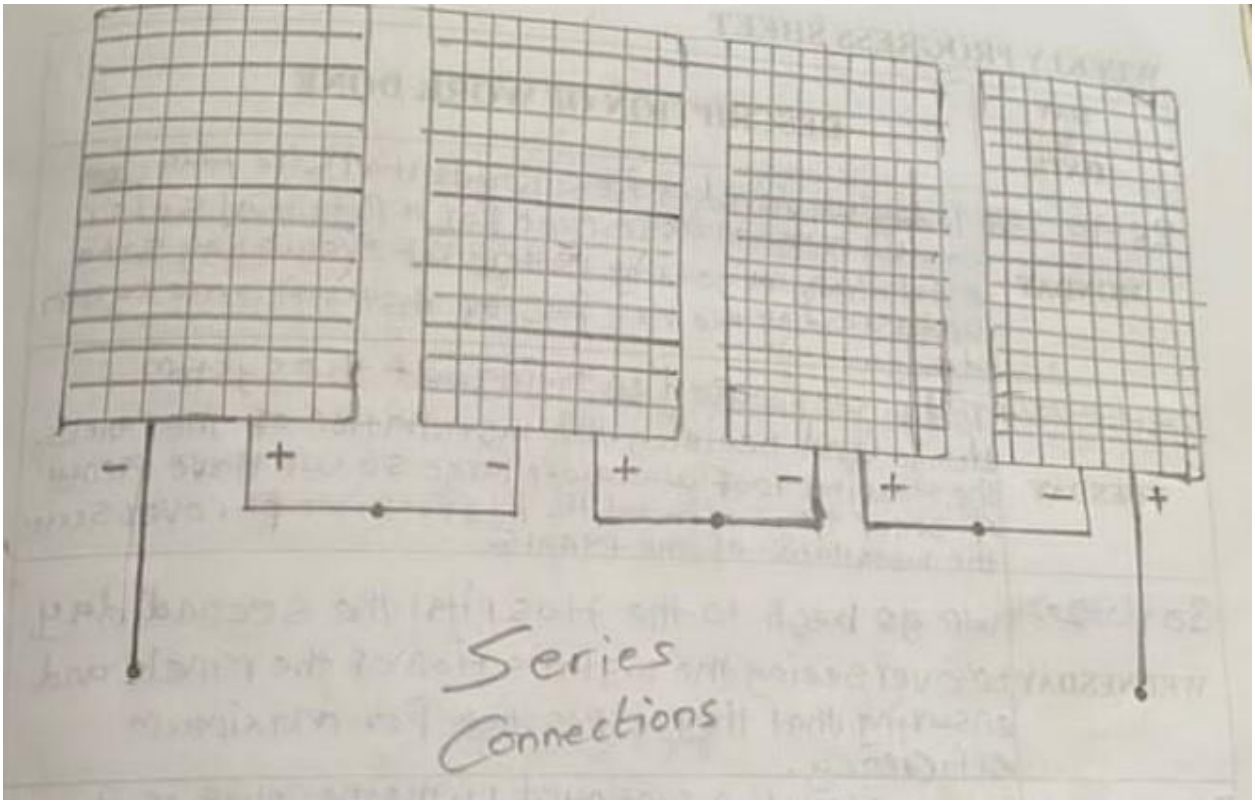
To profit from specialization and the division of labor, DAVE LAW divides its departments into those that perform particular responsibilities. This leads to lower unit costs and greater efficiency in internal processes. The departments are listed as follows:

- Customer Service Department
- Technical/Engineering Department
- Operations Department
- Health, Safety, and Environment (HSE) Department
- Human Resources (HR) Department
- Finance and Accounts Department
- Information Technology (IT) Department
- Legal Department
- Corporate Communications Department

2.4 About Place of Primary Assignment: Technical Department

The technical department in the Company office plays a crucial role in ensuring the effective distribution and maintenance of Solar Panel.

In a series connection the positive terminal of one solar is connected to the negative terminal of the next panel. This set-up the increase the voltage while the current remains.



CHAPTER THREE

WORK DONE

Throughout my four-month tenure at Dave Law Nigerian Limited, I was entrusted with a diverse range of responsibilities encompassing the entirety of technical support and network designs. These duties played a pivotal role in guaranteeing the uninterrupted operation of the company's technical infrastructure and consequently, in augmenting overall productivity.

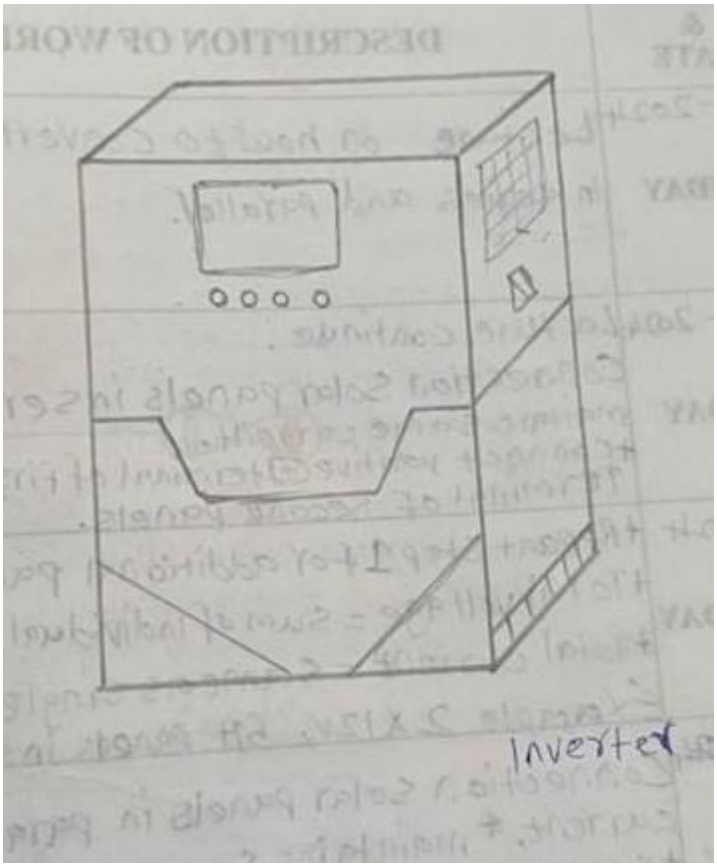
3.1 JOB RESPONSIBILITIES

- **Electrical Maintenance and Repair of Solar**

Responsibility: As an electrical student I assisted in performing scheduled maintenance to prevent faults, troubleshoot issues, and repair damaged components

- **Installation of Electrical Equipment**

Responsibility: I aided the Engineers and technicians in the installation new equipment, ensuring it is done according to safety and regulatory standards.

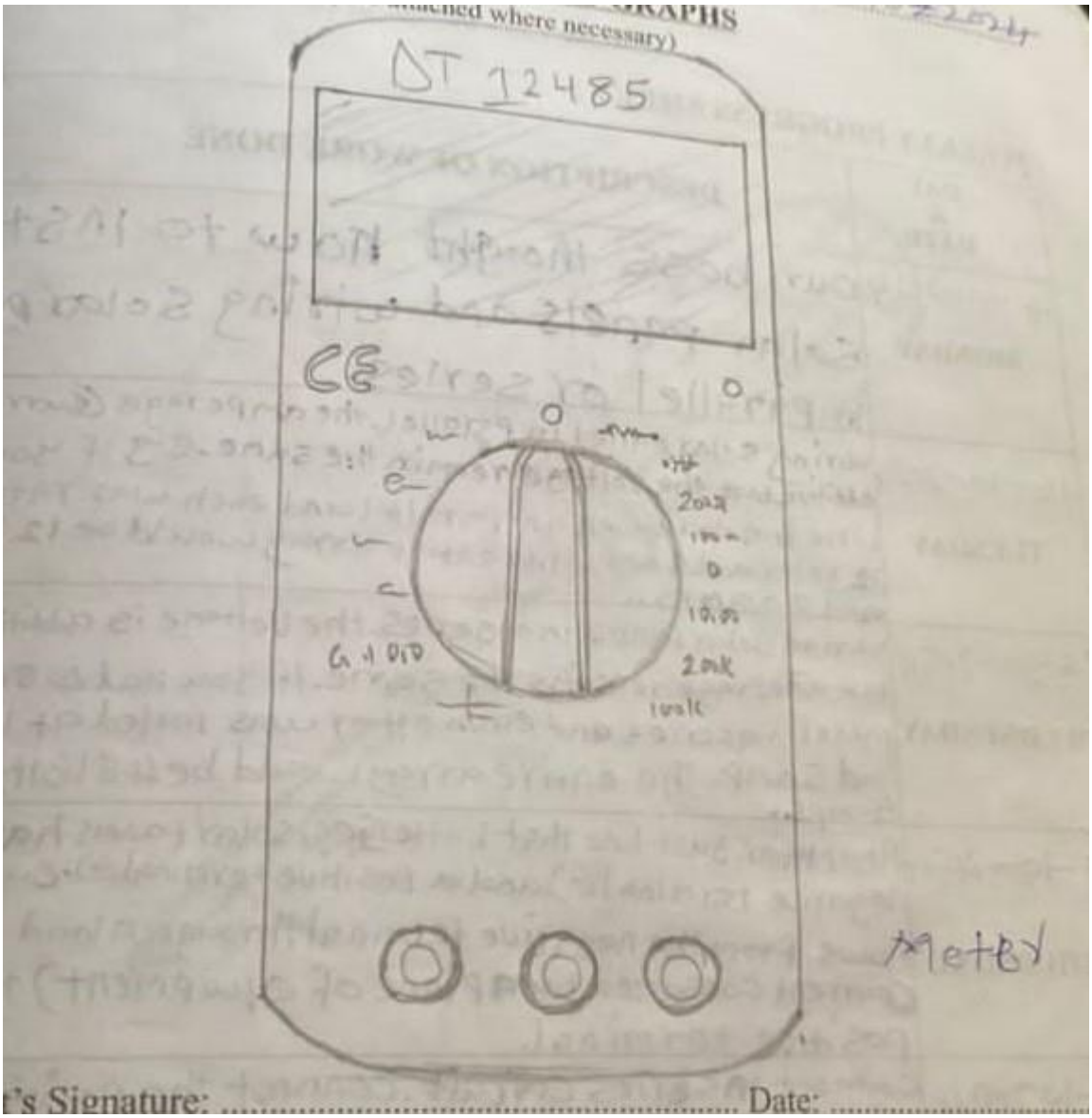


- **Fault Detection and Response**

Responsibility: As part of my duties I implemented a rigorous schedule of Electrical restoration and faults detection and fixing together with the Engineers in the electrical network.

- **Checking the installation of invertal**

Responsibility: I checked the invertal of different invertal using the **earth resistance tester machine** under the guidance of the protection and control engineer



CHAPTER FOUR

4.1 Tools and Technologies

The successful execution of these tasks involved the utilization of a diverse set of tools and technologies, including:

- **Tape measures**

Used for measuring

- **Digital multimeters**

The function is that it measures the resistance of the earth grounding systems to ensure they provide a low-resistance path to ground.

- Usage: To test the quality of power from each solar panel cell.

- **Mounting frames**

The function serves as a structural support system, securely holding the solar panel in place at the optimal angel to capture maximum sunlight while also protecting stability and durability throughout its lifespan.

- **Clamp**

The function is that it measures AC/DC current in a conductor without needing to disconnect it.

- Usage: used to secure the solar panels to the mounting frame.

- **Photovoltaic PV Panel**

Function is to convert sunlight directly into electricity by using semiconductor materials that absorb photons from the light and generate an electrical current through a process called the photovoltaic effect.

- Usage: convert sunlight into electrical energy.

- **Personal Protective Equipment (PPE)**

They protect workers from hazards, including electrical shocks, burns, and falling objects.

-Usage: PPE includes insulated gloves, safety boots, face shields, and arc-rated clothing. It is essential to wear PPE properly during all electrical work for maximum protection.

- **Charge controllers**

Function: is to regulate voltage and current flowing from the solar panels to the battery, preventing overcharging and ensuring the battery is charged safely and efficiently, thereby extending its lifespan.

- Usage: used in solar power systems with battery backup to prevent overcharging.

- **Thermal storage**

Function: Analyzes the performance of circuit breakers to ensure they operate correctly.

- Usage: stores electrical energy generated by solar panels.

- **Battery Testers**

The function of battery tester is that it measures the health and charge level of batteries.

- Usage: Connect the tester to battery terminals to check voltage, capacity, and condition. Useful for verifying backup power sources in protection systems.

CHAPTER FIVE

5.4 Conclusion

The SIWES program at DAVE LAW NIGERIAN LIMITED has been a great experience, bridging the gap between theory and practice. It has equipped me with practical skills in electrical operations, system monitoring, and fault handling while emphasizing the importance of safety and teamwork in technical environments.

Through exposure to real-world challenges, I have gained a better understanding of the responsibilities and complexities involved in maintaining a stable power distribution network. This experience has prepared me to face similar challenges in my future career, where I hope to apply the knowledge and skills I acquired to make meaningful contributions to the field of electrical engineering.

Overall, this placement at DAVE LAW has been an enriching and transformative experience. It has given me a well-rounded exposure to the power distribution sector, honed my technical abilities, and instilled a professional work ethic. As I complete my final year studies, I am eager to apply the knowledge and skills I've gained, contributing to advancements in the power sector and supporting Nigeria's drive for improved and sustainable energy infrastructure.