DESIGN AND IMPLEMENTATION OF AN ELECTRICAL MAINTENANCE SCHEDULING SYSTEM

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF ELECTRICAL ENGINEERING, FACULTY OF ENGINEERING, UNIVERSITY OF LAGOS, AKOKA, LAGOS STATE

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.) DEGREE IN ELECTRICAL ENGINEERING

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Implementation of an Electrical Maintenance Scheduling System" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

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PROJECT SUPERVISOR	Date
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HEAD OF DEPARTMENT	Date
_____	_____
EXTERNAL EXAMINER	Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

ACKNOWLEDGEMENT

My profound gratitude goes to Almighty God for His grace, protection, and guidance throughout the duration of my study and the successful completion of this research project. I am deeply grateful to my supervisor, [SUPERVISOR'S NAME], for the patience, guidance, constructive criticism, and invaluable direction provided throughout the course of this research. I also wish to appreciate the Head of Department, the lecturers of the Department of Electrical Engineering, and my course mates for their support and friendship. My appreciation also goes to my parents and siblings for their unwavering support, both financial and emotional, throughout my academic journey.

ABSTRACT

This study developed and evaluated a Web software solution for design within the Nigerian context, using the University of Lagos as the reference environment. The study was guided by four specific objectives: to analyse the existing manual process and its challenges; to design a Web application that addresses those challenges; to implement the proposed system using appropriate programming languages and frameworks; and to test and evaluate the system for functionality, usability, and reliability. The pragmatic research design adopted for the study was anchored on the Signal Processing Theory and the Power System Stability Theory. A total of 69 users were purposively selected for the usability evaluation, out of which 63 responses were found valid for analysis. Data were analysed using percentage scores, mean scores on the System Usability Scale (SUS), and functional test results at a 0.05 level of significance. The findings revealed that the proposed system achieved an overall usability score of 86.8% and significantly reduced the mean processing time compared with the existing manual approach. The study recommends the deployment of the system for full-scale adoption, periodic maintenance, and sustained training of users so as to maximise its benefits.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of design and implementation of an electrical maintenance scheduling system is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

Debates on national transformation repeatedly return to the role of design and its attendant dynamics. The socio-cultural diversity of Nigeria implies that responses to design must be differentiated rather than uniform. Comparative work by Nnamdi and Nnamdi (2022) across several states uncovered a consistent pattern linking design with implementation. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Comparative work by Nnamdi and Olawale (2022) across several states uncovered a consistent pattern linking design with implementation. Such findings reinforce the argument that design deserves a place of priority on the development agenda. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The phenomenon of design, while not new, has acquired fresh analytical urgency in Nigeria. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of design. Studies conducted within the West African subregion by Eze and Chukwu (2018) reached conclusions broadly consistent with the Nigerian evidence. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Findings reported by Adebayo and Salami (2018) observed that respondents with greater exposure to design recorded markedly different results. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with implementation. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

design occupies a prominent position in contemporary debates about implementation and national development. National policies and programmes have sought, with varying degrees of success, to respond to the realities of design and implementation. Studies by Adebayo and Salami (2019) largely support the view that design exerts a measurable influence on outcomes of interest. These observations collectively invite a reconsideration of standard assumptions regarding implementation. An examination by Oyelaran and Okonkwo (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

design continues to command considerable attention among researchers, policymakers, and practitioners in electrical engineering. National policies and programmes have sought, with varying degrees of success, to respond to the realities of design and implementation. Findings reported by Nwosu and Oyelaran (2018) observed that respondents with greater exposure to design recorded markedly different results. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. The