

DEVELOPMENT OF A SOLAR INSTALLATION PROJECT TRACKER

BY

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[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Development of a Solar Installation Project Tracker" 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.

PROJECT SUPERVISOR

Date

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.

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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 development 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 74 users were purposively selected for the usability evaluation, out of which 64 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 81.1% 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 development of a solar installation project tracker 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.

In both global and African literatures, development is now regarded as a key index of institutional performance. National policies and programmes have sought, with varying degrees of success, to respond to the realities of development and solar. Evidence assembled by Bello and Kalu (2015) across twelve states underscored the heterogeneity of outcomes linked to development. These developments carry important implications for policy and practice in electrical engineering. Studies by Adekunle and Nwosu (2019) largely support the view that development exerts a measurable influence on outcomes of interest. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The relationship between development and solar has been the subject of sustained academic interest across several disciplines. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of development. Findings reported by Obiora and Bamgbose (2018) observed that respondents with greater exposure to development recorded markedly different results. Such findings reinforce the argument that development deserves a place of priority on the development agenda. Studies conducted within the West African subregion by Bamgbose and Ibrahim (2018) reached conclusions broadly consistent with the Nigerian evidence. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Over the past two decades, development has become increasingly significant within the Nigerian landscape and beyond. Nigeria's federal structure and its diverse cultural geography ensure that the experience of development varies considerably from one region to another. The work of Bamgbose and Ibrahim (2023) extended earlier analyses by demonstrating that solar reinforces the effects of development. These observations collectively invite a reconsideration of standard assumptions regarding solar. Field evidence gathered by Oyelaran and Alade (2016) suggested that stakeholder engagement materially improves the results achieved in matters of development. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Few subjects attract as much policy interest in contemporary Nigeria as the question of development. National policies and programmes have sought, with varying degrees of success, to respond to the realities of development and solar. A notable study by Eze and Musa (2017) argued that the impact of development is substantially mediated by the quality of institutions. The cumulative effect of these dynamics is a situation that