DEVELOPMENT OF A CONSTRUCTION PROGRESS REPORTING DASHBOARD

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF CIVIL 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 CIVIL ENGINEERING

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Development of a Construction Progress Reporting Dashboard" 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

_____ _____

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 Civil 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 Structural Load Theory and the Soil Mechanics Theory. A total of 72 users were purposively selected for the usability evaluation, out of which 65 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 80.8% 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 development of a construction progress reporting dashboard 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.

Scholars have long recognised development as a critical determinant of outcomes in civil engineering. Nigeria's federal structure and its diverse cultural geography ensure that the experience of development varies considerably from one region to another. Osinachi and Olawale (2020), in a survey of relevant stakeholders, concluded that the benefits of development are unevenly distributed across groups. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Longitudinal research by Ogbeide and Adebayo (2016) revealed that sustained attention to development yields appreciable dividends over time. For practitioners, the practical significance of development cannot be overstated, given its demonstrable link with construction. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Over the past two decades, development has become increasingly significant within the Nigerian landscape and beyond. Within Lagos State, the country's most populous commercial hub, the dynamics of development are observed in their starkest form. Comparative work by Nnamdi and Olawale (2022) across several states uncovered a consistent pattern linking development with construction. Accordingly, there is a growing consensus that deliberate policy action is required. Studies conducted within the West African subregion by Famuyide and Famuyide (2018) reached conclusions broadly consistent with the Nigerian evidence. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Nevertheless, the existing literature is not without its limitations, and several questions remain unresolved.

Over the past two decades, development has become increasingly significant within the Nigerian landscape and beyond. Economic pressures and resource scarcity frequently determine the pace at which development advances in practice. Field evidence gathered by Famuyide and Famuyide (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. Longitudinal research by Bamgbose and Bakare (2016) revealed that sustained attention to development yields appreciable dividends over time. Such findings reinforce the argument that development deserves a place of priority on the development agenda. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Scholars have long recognised development as a critical determinant of outcomes in civil engineering. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which development unfolds. Studies by Ekwueme and Ekwueme (2019) largely support the view that development exerts a measurable influence on outcomes of interest. These developments