DESIGN AND IMPLEMENTATION OF A WELDING AND FABRICATION JOB TRACKING SYSTEM

BY

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[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Implementation of a Welding and Fabrication Job Tracking 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

_____ _____

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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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 Thermodynamics Laws and the Tribology 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 87.7% 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 a welding and fabrication job tracking 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.

Few subjects attract as much policy interest in contemporary Nigeria as the question of design. Economic pressures and resource scarcity frequently determine the pace at which design advances in practice. Empirical evidence from Ogbeide and Olawale (2021) suggests that positive developments in implementation are associated with improvements in design. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Studies conducted within the West African subregion by Osinachi and Bamgbose (2018) reached conclusions broadly consistent with the Nigerian evidence. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with implementation. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

Over the past two decades, design has become increasingly significant within the Nigerian landscape and beyond. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which design unfolds. The work of Umeh and Bello (2023) extended earlier analyses by demonstrating that implementation reinforces the effects of design. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. A notable study by Bakare and Ekwueme (2017) argued that the impact of design is substantially mediated by the quality of institutions. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with implementation. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Scholars have long recognised design as a critical determinant of outcomes in mechanical engineering. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of design in everyday life. Studies conducted within the West African subregion by Bakare and Ekwueme (2018) reached conclusions broadly consistent with the Nigerian evidence. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Studies by Ogunlana and Dauda (2019) largely support the view that design exerts a measurable influence on outcomes of interest. Accordingly, there is a growing consensus that deliberate policy action is required. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The salience of design in national discourse has grown steadily, driven by changing social conditions and technological penetration. Within Lagos State, the country's most populous commercial hub, the dynamics of design are observed in their starkest form. Research by Obiora and Musa (2021) using mixed methods provided particularly rich insight into the mechanisms connecting design and implementation. The weight of