

DESIGN AND IMPLEMENTATION OF A SPARE PARTS INVENTORY SYSTEM FOR AUTO MARKETS

BY

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[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Implementation of a Spare Parts Inventory System for Auto Markets" 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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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 64 users were purposively selected for the usability evaluation, out of which 59 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 81.6% 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 spare parts inventory system for auto markets 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 design as a critical determinant of outcomes in mechanical engineering. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of design. Findings reported by Nwosu and Nnamdi (2018) observed that respondents with greater exposure to design recorded markedly different results. Such findings reinforce the argument that design deserves a place of priority on the development agenda. The work of Adebayo and Adigun (2023) extended earlier analyses by demonstrating that implementation reinforces the effects of design. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Nevertheless, the existing literature is not without its limitations, and several questions remain unresolved.

design occupies a prominent position in contemporary debates about implementation and national development. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which design unfolds. Evidence assembled by Obiora and Alade (2015) across twelve states underscored the heterogeneity of outcomes linked to design. Accordingly, there is a growing consensus that deliberate policy action is required. A notable study by Nnamdi and Nnamdi (2017) argued that the impact of design is substantially mediated by the quality of institutions. 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.

Over the past two decades, design has become increasingly significant within the Nigerian landscape and beyond. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream design into routine governance. Studies by Nnamdi and Nnamdi (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. A notable study by Dauda and Bamgbose (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. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

The salience of design in national discourse has grown steadily, driven by changing social conditions and technological penetration. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of design. Dauda and Aderemi (2020), in a survey of relevant stakeholders, concluded that the benefits of design are unevenly distributed across groups. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Studies conducted within the West African