

# **DESIGN AND IMPLEMENTATION OF A FUMIGATION SCHEDULING SYSTEM**

BY

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DEGREE IN SOFTWARE ENGINEERING

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## CERTIFICATION

This is to certify that this research project titled "Design and Implementation of a Fumigation 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

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Date

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HEAD OF DEPARTMENT

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Date

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EXTERNAL EXAMINER

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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 Software 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 Technology Acceptance Model and the UTAUT. A total of 69 users were purposively selected for the usability evaluation, out of which 61 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 84.9% 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 fumigation 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.

design continues to command considerable attention among researchers, policymakers, and practitioners in software engineering. In Nigeria, the intersection of design and implementation is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. An examination by Obiora and Bello (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Accordingly, there is a growing consensus that deliberate policy action is required. Field evidence gathered by Bello and Bello (2016) suggested that stakeholder engagement materially improves the results achieved in matters of design. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Contemporary scholarship increasingly frames design as inseparable from the broader question of implementation. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of design. Findings reported by Ekwueme and Nnamdi (2018) observed that respondents with greater exposure to design recorded markedly different results. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. The work of Alade and Bamgbose (2023) extended earlier analyses by demonstrating that implementation reinforces the effects of design. Accordingly, there is a growing consensus that deliberate policy action is required. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Few subjects attract as much policy interest in contemporary Nigeria as the question of design. Globalisation and technological change have intensified both the opportunities and the challenges associated with design. Findings reported by Alade and Bamgbose (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. Comparative work by Oyelaran and Bakare (2022) across several states uncovered a consistent pattern linking design with implementation. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with implementation. Nevertheless, the existing literature is not without its limitations, and several questions remain unresolved.

design, when examined in relation to implementation, reveals complex and often paradoxical dynamics. Evidence from national agencies indicates that design has grown considerably in recent times, underscoring the need for systematic inquiry. Findings reported by Adeniyi and Alade (2018) observed that respondents with greater exposure to design recorded markedly different results. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Okonkwo and Obiora (2020), in a survey of