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| **ACCRA TECHNICAL UNIVERSITY**  **DESIGN AND ANALYZATION OF A MOBILE Agricultural Application FOR A Poultry Farm – A CASE STUDY of God is Love Poultry Farm**  **By**  **NARTEY MOSES TETTEY**  **(01224602D)**  **RESEARCH PROJECT REPORT/ THESIS Submitted to the**  **DEPARTMENT OF COMPUTER SCIENCE,**  **FACULTY OF APPLIED SCIENCES**  **in Partial Fulfilment of the Requirements for the**  **AWARD OF A HIGHER NATIONAL DIPLOMA (HND)**  **In**  **COMPUTER SCIENCE**  **MAY, 2025** |

# DECLARATION BY STUDENTS

This project is submitted as part of fulfilment for the award of an **HND** in **Computer Science**: The work is a result of our investigation. All section of the text and results which have been obtained from other works/ sources are fully referenced. We understand that cheating and plagiarism constitute a breach of Accra Technical University and will be dealt with accordingly.

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# DECLARATION BY SUPERVISOR

I hereby confirm that the above students are **HND Students** in the **Department of Computer Science** under my academic and research supervision in accordance with the project work requirements in Accra Technical University.

**NAME SIGNATURE DATE**

**MR. QUASHIE DUODU ……………… ………………**

# DEDICATION

I dedicate this book to the Most High God, my lovely parents, my siblings, my friends and all my lecturers for their support assistance throughout my training.

# ACKNOWLEDGEMENTS

I will take this opportunity to show my gratitude to everyone who made this project a success. However, it will not have been possible without the kind support and help of my classroom colleagues. I would like to extend my sincere thanks to all of them. I am highly indebted to my Supervisor, HOD, Lecturer One, Lecturer Two etc. for their guidance and constant supervision providing necessary information regarding the project and also their support in completion. I will

## CHAPTER ONE

**INTRODUCTION**

### 1.1 BACKGROUND

According to the Merriam-Webster dictionary, a service is an act of help or assistance provided to meet the needs of clients. In today’s rapidly evolving agricultural industry, digital service platforms are essential tools through which farmers and agribusinesses deliver value, often using technology to improve efficiency, productivity, and customer engagement. A mobile application system, in this context, can be defined as a software-based platform designed to offer specific agricultural services to users via mobile devices (Ferguson et al., 2016).

A mobile application for a poultry farm is a digital solution that enables farm owners and workers to manage operations such as feeding schedules, egg collection, vaccination tracking, sales, inventory management, and customer orders through an easy-to-use mobile interface. It can also offer customers a convenient platform to place orders, receive notifications on product availability, and track deliveries. Such systems can greatly enhance operational efficiency and customer satisfaction (Attaran, 2021).

This forms the foundation for the **Design and Analysis of a Mobile Application System for a Poultry Farm – A Case Study of God is Love Poultry Farm**. As technology continues to shape modern agriculture, farms of all sizes are turning to digital tools to improve performance, reduce losses, and stay competitive in a data-driven market. For poultry farms, a shift toward mobile and digital platforms presents an opportunity to streamline record-keeping, monitor flock health, manage inventory, and improve customer relations.

One of the key advantages of using mobile technology in a poultry farm setting is the ability to centralize key farm activities and offer real-time monitoring. For example, farmers can be notified about feeding times, get alerts on temperature and humidity conditions in poultry houses, track egg production rates, and receive reminders for vaccinations or restocking. Just as insurance companies use geospatial data to tailor services, poultry farms can use mobile technology to track production trends, customer orders, and health records to optimize outcomes.

As the demand for poultry products increases, especially in urban and peri-urban areas, manual farm management methods can become inefficient. A mobile application serves as a digital bridge between the farm and its stakeholders—customers, suppliers, and workers—minimizing errors and allowing more strategic decisions. This project seeks to design and analyze a mobile application tailored for **God is Love Poultry Farm**, located near a university campus, to support modern poultry management through a smart, integrated solution.

This study focuses on the digital transformation of poultry farming operations through the development of a mobile-based management and customer interaction platform. Mobile applications allow farmers and customers to connect anytime, anywhere—facilitating farm productivity, traceability, and service quality. With such a tool, poultry farms can automate tasks, maintain accurate records, reduce manual errors, and improve communication and service delivery.

Ultimately, the design and analysis of a mobile application system is a crucial step in modernizing farming practices and meeting the growing expectations of tech-savvy consumers and efficient farm operators. This project explores how such a solution can enhance productivity and stakeholder satisfaction, using **God is Love Poultry Farm** as a case study. The study area covers the university community and nearby towns, where most of the farm’s customers reside and place orders.

### 1.2 STATEMENT OF THE PROBLEM

The poultry farming industry in the areas around the campus—including North Legon, Madina, and Adenta—has witnessed steady growth in recent years. As the demand for poultry products like eggs and broiler meat continues to rise, farms such as **God is Love Poultry Farm** play a critical role in food supply and livelihood creation. However, several challenges persist, including poor record management, difficulty in tracking inventory, limited customer engagement, and a lack of modern systems to optimize farm operations.

Many poultry farms still rely on manual processes such as physical logbooks, paper records, and verbal communication, which can lead to disorganization, data loss, and inefficiencies in production and customer service. In a fast-changing, digitally inclined environment, these outdated practices can hinder productivity and customer satisfaction.

Adopting a mobile application can provide a scalable solution to address these issues. A dedicated platform for **God is Love Poultry Farm** can streamline inventory control, automate feeding and vaccination schedules, manage customer orders, and enhance service delivery. This study investigates how such a system can improve the overall operations of the farm and position it for future growth.

### 1.2.1 Research Questions

This project will be guided by the following research questions:

* What is the current system used by **God is Love Poultry Farm** for managing farm operations and customer interactions?
* What challenges do farm staff and customers face under the current system?
* What type of mobile application system can be designed to improve inventory management, automate routine tasks, and enhance customer experience at the farm?

### 1.3 OBJECTIVES OF THE STUDY

The main objectives of this research are:

* To investigate the existing methods used at **God is Love Poultry Farm** for managing daily farm operations and customer services.
* To identify the key challenges faced by farm workers and customers in accessing and delivering poultry products and services.
* To propose a mobile application system that can optimize poultry farm management, automate tasks such as feeding and inventory tracking, and provide a convenient interface for customer interaction.

### 1.4 SIGNIFICANCE OF THE STUDY

The proposed mobile application system has the potential to transform the operations of **God is Love Poultry Farm** and other farms facing similar challenges. The digital platform will streamline processes such as feeding, vaccination, egg tracking, and order management. It will also allow customers to place orders, track availability, and receive updates in real-time—enhancing transparency and trust.

For the farm, the system provides structured data collection, improved time management, and better oversight of flock health and inventory. This will lead to more informed decisions, fewer errors, and increased productivity. Overall, the study will highlight the role of mobile technology in modernizing agriculture and promoting sustainable, customer-centric poultry farming practices.

### 1.5 ORGANIZATION OF THE STUDY

This project work is structured as follows:

* **Chapter One** – Introduction: background, problem statement, research questions, objectives, significance, and organization of the study.
* **Chapter Two** – Literature Review: reviews relevant works and existing digital tools in poultry farming.
* **Chapter Three** – Methodology: outlines the research methods used to gather and analyze data for system design.
* **Chapter Four** – System Design and Implementation: presents the proposed mobile application and its components.
* **Chapter Five** – Summary, Conclusion, and Recommendations: discusses findings, project contributions, and suggestions for future improvements.

Let me know when you’re ready for **Chapter Two: Literature Review**, or if you'd like visuals, diagrams, or wireframes for the mobile app.