UNITY UNIVERSITY

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND MIS

FINAL PROJECT

CHAPTER ONE

Submitted by: 1. Mikiyas Girum (UU87422R)

2. Yohannis Girma (UU87229R)
3. Yosef Mekonnen (UU87054R)
4. Kaleb Getachew (UU85613R)
5. Seyfu Saliya (UU87426R)

Summited to: Ms. Menbere Tesfaye .

ONLINE PROPERTY TAX PAYMENT SYSTEM

Table of Contents

1. INTRODUCTION

1.1 BACKGROUND INFORMATION

The efficient and equitable collection of property tax is a fundamental cornerstone of any well-functioning government, a statement that holds true for Ethiopia as well. Property tax revenues serve as a critical source of funding for local services, infrastructure development, and public programs. As one of the oldest and most stable sources of government revenue, property taxes play an instrumental role in promoting economic growth and ensuring the equitable distribution of resources within the country. The collection of property taxes in a fair and effective manner is not only a financial necessity but also an essential element for sustaining government services and advancing Ethiopia's socio-economic development.

Despite the historical significance of property taxes, Ethiopia, like many countries, faces a set of unique challenges when it comes to property tax collection. The existing property tax system has, over time, become encumbered by inefficiencies, complexities, and resource limitations. Property assessment, billing, payment collection, and record-keeping have traditionally relied on labor-intensive manual and paper-based processes, leading to a series of issues. These issues include delays in tax collection, inaccuracies in property assessments, and revenue leakages, creating formidable hurdles in maintaining a fair and effective property tax system.

In response to these challenges, the Ethiopian government has recognized the pressing need to modernize the property tax system through the utilization of information and communication technology (ICT). The introduction of an Online Property Tax Payment System represents a significant stride toward achieving this goal. This system is poised to streamline the property tax collection process by replacing traditional manual procedures with digital efficiency, thereby enhancing transparency and significantly improving the overall experience for property owners.

The traditional methods of tax payment have, over time, become outdated and inefficient. Property owners often face challenges such as long waiting times, the need to physically visit government offices, and the risk of losing paper receipts. These challenges not only inconvenience property owners but also hinder the government's ability to collect taxes effectively and transparently.

This project is dedicated to exploring the transformation of property tax collection in Ethiopia, with a specific focus on the implementation of the Online Property Tax Payment System. It aims to comprehensively understand the factors influencing property owners' satisfaction as they transition to this online system and to evaluate the system's broader impact on the efficiency and effectiveness of property tax collection. By shedding light on these critical aspects, this project contributes to the ongoing efforts to modernize property tax administration and support Ethiopia's economic and social development.

As we delve into this endeavor, we embark on a journey toward a more efficient, transparent, and citizen-centric property tax system that not only serves as a catalyst for socio-economic growth but also fosters equity and fairness in tax collection. The Online Property Tax Payment System represents a pivotal step towards realizing this vision, and we look forward to the collaborative efforts and collective commitment required to make it a reality.

1.2 STATEMENT OF THE PROBLEM

Efficient and equitable property tax collection is an indispensable component of effective governance, providing essential funding for local services, infrastructure development, and public programs. Ethiopia, like many countries, grapples with a complex web of challenges in its property tax collection system. These challenges encompass various aspects of property tax collection, including property assessment, billing, payment collection, and record-keeping.

The primary problems that this project seeks to address can be summarized as follows:

Inefficiencies plague the traditional property tax collection methods, where property owners are burdened with long waiting times, the need for physical visits to government offices, and the risk of losing paper receipts. These inefficiencies inconvenience property owners and hinder the government's ability to collect taxes effectively and transparently. Furthermore, the manual and paper-based property assessment processes often lead to inaccuracies in property valuations, resulting in discrepancies in tax assessments that impact the fairness and equity of property tax collection.

The existing property tax system also leads to delays in tax collection, affecting the government's access to timely revenue required for service delivery and infrastructure development. Revenue leakages due to non-payment, corruption, and ineffective billing systems represent a significant challenge, resulting in missed opportunities for funding vital government services and development projects. The lack of transparency in property tax collection further erodes public trust in the system and hinders the equitable distribution of resources.

In addition to these primary problems, there are several other issues and challenges that demand attention and resolution. Limited access to tax information, manual record-keeping, cumbersome payment procedures, inequitable taxation, ineffective enforcement, inadequate taxpayer education and outreach, and a complex legal and regulatory framework all contribute to the intricacies of the property tax collection system in Ethiopia.

The amalgamation of these challenges underscores the urgent need to modernize the property tax collection system. The implementation of an Online Property Tax Payment System presents an opportunity to address this multifaceted problem and create a more efficient, equitable, and transparent property tax system. However, the successful transition to this system and its potential to alleviate these issues require comprehensive investigation and analysis.

1.3 OBJECTIVES

1.3.1 GENERAL OBJECTIVE

The general objective of this project is to create and design an Android-based mobile application for a property tax payment system, specifically tailored to meet the needs of Addis Ababa, Ethiopia.

1.3.2 SPECIFIC OBJECTIVE

The specified objectives of mobile based property tax payment system project include the following.

- ✓ To design a user-friendly and intuitive mobile app interface for property tax payments
- ✓ To ensure the mobile app is accessible to users with diverse technological literacy levels, from novice to advance.
- ✓ To integrate a user-friendly property assessment tool within the mobile app, allowing property owners to calculate their tax obligations accurately.
- ✓ To incorporate real-time updates on tax rates and deadlines to keep users informed and compliant.
- ✓ To develop an educational component within the app, offering resources and guidance on property tax regulations and obligations.
  To conduct usability testing with a diverse user base to refine the mobile app's design and functionality
- ✓ To provide customer support through multiple channels, including text-based and voice-based assistance, to address inquiries from users with varying communication preferences.
- ✓ To establish a seamless and intuitive user interface design for easy navigation and accessibility.
- ✓ To conduct thorough user testing and optimization to ensure smooth functionality and minimize errors.
- ✓ To integrate a GPS-based property locator feature for users to easily find their properties within the system.
- ✓ To implement a secure login and authentication system to safeguard user accounts and prevent unauthorized access.
- ✓ To provide a comprehensive FAQ section and user guides within the application to assist users with any questions or concerns.
- ✓ To enable users to customize their account settings and preferences to suit their individual needs.

- ✓ To establish a reliable and efficient customer support system to address any technical issues or inquiries promptly.
- ✓ To leverage data analytics to generate reports and insights regarding tax payment trends and patterns.
- ✓ To regularly update the mobile application with bug fixes, security patches, and new features based on user feedback.
- ✓ To conduct regular maintenance and monitoring to ensure the system's availability and performance.
- ✓ To maintain a user-friendly and visually appealing design that enhances the overall user experience.
- ✓ To foster a strong feedback culture, actively listen to user suggestions, and continuously work on enhancing the mobile application based on their needs and preferences.

1.4 SCOPE OF THE PROJECT

This project's scope is dedicated to creating and implementing a mobile-based property tax payment system tailored for Addis Ababa, the capital city of Ethiopia. The project is designed to address a wide range of objectives and functionalities to modernize property tax collection effectively. The core of the project revolves around developing a user-friendly mobile app interface for property tax payments. Inclusivity is a central theme, ensuring accessibility for users with varying technological literacy levels, from novices to advanced users.

Beyond these core functionalities, the project encompasses the integration of a user-friendly property assessment tool in the mobile app. This tool empowers property owners to accurately calculate their tax obligations. Real-time updates on tax rates and deadlines are incorporated to keep users informed and ensure timely compliance.

Moreover, the project extends to the educational realm, offering resources and guidance on property tax regulations and obligations. Usability testing with a diverse user base is conducted to refine the mobile app's design and functionality. In addition, customer support is provided through multiple channels, including text-based and voice-based assistance, accommodating users with different communication preferences.

On the technical front, the project encompasses creating a seamless and intuitive user interface for easy navigation and enhancing overall accessibility. Thorough user testing and optimization are conducted to ensure smooth functionality and minimize errors. A GPS-based property locator feature aids users in easily finding their properties within the system.

Implementation of a secure login and authentication system safeguards user accounts and prevents unauthorized access. The project further aids users with a comprehensive FAQ section and user guides, addressing their questions and concerns.

Customization options are offered, allowing users to tailor their account settings and preferences to their specific needs. The project establishes a reliable and efficient customer support system to address technical issues and inquiries promptly.

Data analytics are leveraged to generate reports and insights regarding tax payment trends and patterns. Regular updates to the mobile application are conducted, including bug fixes, security patches, and new features based on user feedback. Maintenance and monitoring ensure the system's availability and performance. The project maintains a user-friendly and visually appealing design, enhancing the overall user experience.

This holistic approach ensures that the project effectively modernizes property tax collection in Addis Ababa, Ethiopia, offering an accessible, secure, and user-centric mobile-based system.

1.5 TOOLS AND METHODOLOGIES

1.5.1 DATA COLLECTION METHODOLOGIES

To achieve the project's objectives effectively and make informed decisions, we will employ a mix of data collection methodologies, including:

1. Surveys and Questionnaires: We will develop surveys and questionnaires to gather information from property owners and potential users of the Online Property Tax Payment System. This method will help us understand user preferences, expectations, and technological literacy levels.

2. Interviews: In-depth interviews will be conducted with various stakeholders, including property owners, government authorities, and tax professionals. These interviews will provide qualitative insights into their experiences, challenges, and suggestions.

3. Data Analysis: We will analyze existing data related to property tax collection, inefficiencies, and revenue leakages to understand the scope of the problem.

4. Usability Testing: Usability testing with a diverse user base will allow us to assess the functionality of the mobile app and gather feedback on user experience.

1.5.2 SYSTEM DEVELOPMENT METHODOLOGY

The system we are building uses an object-oriented approach. The development will follow an agile methodology for system development, allowing for iterative development and flexibility to accommodate changes and enhancements based on user feedback. We will adopt the following stages:

1. Planning: In this phase, we will define project objectives, scope, and requirements. We will also establish a project timeline and allocate resources.

2. Analysis: We will conduct an in-depth analysis of the existing property tax collection system to identify shortcomings and areas for improvement. User research will inform system design.

3. Design: Based on the findings from the analysis phase, we will design the mobile app's user interface, system architecture, and features. Ensuring accessibility and data security will be a primary focus during this phase.

4. Development: The actual development of the mobile app and system will occur in this phase. The app will be designed to incorporate features for property tax payments, assessment, user support, and data analytics.

5. Testing: Extensive usability testing and bug testing will be conducted to ensure the mobile app's functionality, user-friendliness, and security. Feedback from users will guide further refinements.

6. Deployment: Once the app is deemed ready, it will be deployed for use by property owners and relevant authorities.

7. Monitoring and Maintenance: Continuous monitoring will ensure system availability and performance. Regular maintenance will include updates, security patches, and bug fixes based on user feedback.

1.5.3 DEVELOPMENT TOOLS

The development of the Online Property Tax Payment System will utilize a variety of tools and technologies, including

Software Development Tools:

1. **Integrated Development Environment (IDE):**

   Android Studio:

   - Official IDE for Android development.
   - Provides a comprehensive set of tools for building Android apps.

2. **Programming Language:**

   Java:

   - Widely used for Android development.
   - Offers a large developer community and extensive libraries.

3. **User Interface Design:**

   XML:

   - Android XML layouts for defining the app's UI.
   - Utilize Material Design principles for a consistent and intuitive user interface.

4. **Backend Development:**

   Firebase:

   - Backend service used for authentication and storage.

5. **Diagram Drawing:**

Microsoft Visio:

- Tool for drawing diagrams.

6. **Documentation and Writing:**

Microsoft Word:

- For writing project documents.

7. **Geolocation Services:**

GPS-Based Services:

- Utilize Android's built-in location services for implementing a property locator feature.

Hardware Development Tools:

1. **Development Workstations:**

Laptop Computer:

- Used for coding, testing, and overall development.

2. **File Management:**

32 GB Flash Disk:

- To transfer files between devices.

3. **Documentation and Printing:**

Printer:

- Used to print project documents.

4. **File Sharing:**

Flash Drive:

- Used for sharing files and resources.

5. **Testing:**

Mobile Devices for Testing:

- Android device for testing the mobile app.

1.6 BENEFICIARIES

The implementation of the Online Property Tax Payment System for Addis Ababa, Ethiopia, will bring about several categories of beneficiaries, each with specific advantages and improvements:

1. Property Owners: Property owners in Addis Ababa will be among the primary beneficiaries. They will benefit from the convenience of an online platform for paying property taxes, eliminating the need for physical visits to government offices and reducing waiting times. The system's user-friendly interface, educational resources, and real-time updates will empower property owners to better understand their tax obligations and stay compliant.

2. Government Authorities: The government stands to gain significantly from this project. The Online Property Tax Payment System will streamline tax collection processes, reducing inefficiencies and revenue leakages. Timely access to tax revenue will enable government authorities to fund local services, infrastructure development, and public programs more effectively. Additionally, data analytics will provide insights into tax payment trends, enabling informed decision-making.

3. Local Services and Infrastructure: With improved revenue collection, local services and infrastructure development will receive a boost. Property tax revenues are a critical source of funding for these essential services, and the Online Property Tax Payment System will contribute to their more efficient and equitable provision.

4. Public Programs: Government programs aimed at enhancing the quality of life for citizens, including healthcare, education, and social services, will benefit from increased funding. A well-functioning property tax collection system ensures a sustainable source of revenue to support these programs.

5. Economic Growth: Efficient and equitable property tax collection plays a pivotal role in promoting economic growth. By addressing the existing challenges and fostering a transparent and efficient system, this project can contribute to Ethiopia's economic development.

6. Transparency and Accountability: The introduction of an online system enhances transparency in property tax collection, which, in turn, fosters public trust. This transparency ensures that resources are distributed more equitably.

7. Tax Professionals and Agencies: Local tax professionals and agencies may benefit from partnerships with the project to offer expert assistance or guidance to users. This collaboration can provide them with opportunities for business growth.

1.7 SCHEDULE

The project schedule will follow a structured timeline to ensure the successful development and implementation of the Online Property Tax Payment System. The following is an outline of the project schedule:

- **Project Initiation (Weeks 1-3):** Define project objectives, scope, and team allocation. Conduct a thorough project kickoff, including stakeholder meetings and resource allocation.
- **Analysis and Research (Weeks 4-8):** Conduct in-depth analysis of the existing property tax collection system, gather user requirements, and initiate data collection methodologies such as surveys, interviews, and data analysis.
- **Design and Planning (Weeks 9-13):** Design the user interface, system architecture, and features of the mobile app. Plan the development process, ensuring a user-centric approach and data security.
- **Development (Weeks 14-21):** Begin the development of the mobile app and payment system. Ensure the integration of key features, data analytics, and security protocols. Collaborate with government authorities and tax departments to ensure regulatory compliance.
- **Usability Testing (Weeks 22-24):** Conduct usability testing with a diverse user base to refine the app's functionality. Address any identified issues and refine the user interface.
- **Deployment (Weeks 25-30):** Deploy the Online Property Tax Payment System for use by property owners and relevant government authorities in Addis Ababa.
- **Monitoring and Maintenance (Ongoing**): Implement continuous monitoring to ensure system availability and performance. Regularly update the mobile application with bug fixes, security patches, and new features based on user feedback. Maintain data security and data privacy.
- **User Support (Ongoing):** Establish a reliable and efficient customer support system to address technical issues or inquiries promptly. Offer user support through multiple channels, including text-based and voice-based assistance.
- **Data Analytics (Ongoing):** Leverage data analytics to generate reports and insights regarding tax payment trends and patterns. Use this data to drive informed decisions and improvements.
- **User Education (Ongoing):** Continue to provide resources and guidance on property tax regulations and obligations within the application.
- **Enhancements and Updates (Ongoing):** Foster a strong feedback culture, actively listen to user suggestions, and continuously work on enhancing the mobile application based on user needs and preferences.

This structured schedule ensures the project's timely execution and the ongoing improvement of the Online Property Tax Payment System to meet the needs of its beneficiaries effectively.

Gant chart

Table 1.1 Gantt chart

Task	Duration	Week 1-3	Week 4-8	Week 9-13	Week 14-21	Week 22-24	Week 25-30	Dependencies
Project Initiation	**3 weeks**							**-**
Analysis and Research	**5 weeks**							**Project Initiation**
Design and Planning	**5 weeks**							**Analysis and Research**
Development	**8 weeks**							**Design and Planning**
Usability Testing	**3 weeks**							**Development**
Deployment	**6 weeks**							**Usability Testing**
Monitoring and Maintenance	**Ongoing**							**Deployment**
User Support	**Ongoing**							**Deployment**
Data Analytics	**Ongoing**							**Deployment**
User Education	**Ongoing**							**Deployment**
Enhancements and Updates	**Ongoing**							**Deployment, Data Analytics, User Support**

Notes:

- The timeline is in weeks.
- The "Ongoing" tasks are represented with a continuous timeline, indicating that these activities continue throughout the project.
- The start date of each task is based on the completion of the previous task.
- The Gantt chart provides a visual representation of the project schedule, with each task's duration and dependencies.