Introduction

<u>1.1 Overview</u>

The FindNearMe mobile application is designed to bridge the gap between local buyers and sellers. The primary objective of the app is to provide a seamless, efficient, and secure platform for discovering, purchasing, and selling items within local communities. This not only promotes environmental sustainability by encouraging local transactions but it also boosts local commerce by supporting small businesses. This can significantly aid in addressing Nigeria's declining economic growth.

By leveraging advanced technologies such as AI-powered image recognition and real-time mapping services, this system aims to apply a geotagging based approach to retail. The key features of this application include; Image Recognition and Matching for Product Search, Location-Based Search & Interactive Maps, Seller and Buyer Accounts, Seller Profiles and In-App Messaging which will be further discussed in this report.

<u>1.2 Background and Motivation</u>

In recent years, the global landscape of commerce has witnessed a significant shift towards digital platforms and online marketplaces. While this transformation has brought convenience and accessibility to consumers worldwide, it has also posed challenges for local businesses, particularly small and medium-sized enterprises (SMEs) in developing countries like Nigeria. These businesses often struggle to compete with larger, more established online retailers, resulting in decreased visibility and sales opportunities.

The motivation behind the FindNearMe app stems from the need to support local commerce, empower small businesses, and enhance the overall shopping experience for consumers in Nigeria. Consumers frequently face difficulties in finding specific items locally, leading to time-consuming searches. The app simplifies and expedites this process by enabling users to find products through AI-powered image recognition and detailed local listings.Long-distance shipping associated with online shopping contributes to carbon emissions and environmental degradation. FindNearMe encourages the purchase of locally produced goods, which often have a smaller carbon footprint compared to imported items. Small businesses in Nigeria often struggle with limited visibility and reach. FindNearMe provides a platform for these businesses to showcase their products to a broader local audience, helping them compete with larger retailers.By promoting local businesses, the app contributes to economic growth and job creation, fostering a thriving local economy.

Nigeria, with its burgeoning population and increasing smartphone penetration, presents a unique opportunity for leveraging mobile technology to bridge the gap between local buyers and sellers. This project represents a significant step forward in utilizing technology to solve real-world problems and enhance the quality of life for individuals in Nigeria.

1.3 Statement of the Problem

Despite the growing digital landscape and increased smartphone penetration in Nigeria, local commerce faces several critical challenges. Many local businesses, particularly SMEs, find it difficult to compete with larger, well-established online retailers due to limited marketing resources and digital presence. According to a report by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), 85% of SMEs in Nigeria face challenges related to market access and visibility. The lack of a robust platform to showcase their products reduces the revenue potential for these businesses, leading to economic disparities and stunted growth in local economies.

Furthermore, Consumers often face difficulties in locating specific items locally, leading to time-consuming and frustrating search processes. A survey conducted by the Nigerian Communications Commission (NCC) revealed that 60% of Nigerian consumers prefer shopping online due to the difficulty of finding local products. Consumers are also unable to access comprehensive information about local products and sellers, making it challenging to make informed purchasing decisions.

In addition, the rise of online shopping has led to an increase in long-distance shipping, contributing to higher carbon emissions and environmental degradation. There is a growing need to promote sustainable consumption patterns by encouraging local transactions and reducing the environmental impact associated with goods distribution. The absence of a platform that fosters local interactions and collaborations also leads to disconnected communities. There is a need to strengthen community ties through local commerce. Promoting local production and consumption can enhance community engagement and support local economies, but there is currently no efficient system to facilitate this.

The FindNearMe app aims to address these problems by providing a comprehensive solution that enhances visibility for local businesses, simplifies product discovery for consumers, promotes sustainable practices, and fosters community engagement. By leveraging AI-powered image recognition and real-time mapping services, the app seeks to create a seamless and efficient platform for local commerce, ultimately contributing to the socio-economic development of Nigeria.

1.4 Aims and Objectives

1.4.1 Aims
The Aims of this application are to create a user-friendly application that allows consumers to expeditiously discover, compare, and purchase products from local sellers. As well as develop a platform that supports and boosts local businesses by increasing their visibility and accessibility to nearby consumers. To also encourage sustainable consumption by reducing the need for long-distance shipping and promoting local transactions.

1.4.2 Objectives

1. Develop core functionality:
   - Implement AI-powered image recognition to allow users to scan items and find similar products.
   - Integrate a mapping feature, such as Google Maps, to provide users with directions to local sellers.
   - Integrate geotagging functionality to accurately pinpoint the location of products and connect buyers to nearby sellers.
   - Implement an In-App messaging so buyers can seamlessly communicate with sellers.
   - Implement a reservation feature with a time limit so buyers can reserve the products they want before it sells out.

2. Create User Accounts:
   - Design and implement separate accounts for buyers and sellers.
   - Enable sellers to upload pictures of available items along with their location and contact details.
   - Implement a review and rating system to build trust and reliability among users.

1.5 Significance

The FindNearMe mobile application holds significant potential to transform local commerce in Nigeria by providing a comprehensive solution that benefits both consumers and local businesses. Its significance lies in its ability to make local shopping more convenient, environmentally friendly, and supportive of community growth and development.

Improving Consumer Convenience: The AI-powered image recognition feature allows consumers to find products easily by simply scanning items, eliminating the need for extensive searches and making shopping more convenient. Integration with mapping services like Google Maps, along with geotagging, provides users with accurate directions to seller locations, ensuring they can quickly and easily find what they are looking for.The app also provides comprehensive product information, reviews, and ratings, helping consumers make informed purchasing decisions.

Empowering Local Businesses: The app offers a platform for local businesses to showcase their products to a wider audience, which helps them overcome the limitations of traditional brick-and-mortar stores. By allowing sellers to upload images and details of their products, the app serves as an effective marketing tool that can attract more customers and drive sales. Supporting local businesses through the app contributes to the overall economic growth of the community by creating jobs and increasing local revenue.

Promoting Sustainable Practices: By encouraging local transactions, the app helps reduce the need for long-distance shipping, thereby lowering carbon emissions associated with transportation. Furthermore, promoting the purchase of locally produced goods supports sustainable consumption patterns and reduces the environmental impact of goods distribution.

Strengthening Community Ties: The app fosters trust between buyers and sellers through secure transactions, ratings, and reviews, creating a trustworthy marketplace. By facilitating local transactions, the app promotes interactions within the community, contributing to stronger social ties and community support. In addition, supporting local businesses helps retain money within the community, which can be reinvested in local infrastructure and services.

Leveraging Advanced Technologies: The use of advanced AI technologies for image recognition enhances the user experience by making product discovery quick and intuitive. Accurate geotagging and integration with mapping services improve the reliability and accuracy of search results, enhancing the overall usability of the app.

1.6 Project Risks Assessment

These are a few risks that can come up in the advancement of this project and recommended ways the risk may possibly be avoided.

Table 1.1

Risk	Risk Mitigation
Low User Adoption: The app might fail to attract a sufficient number of users or users may hesitate accommodating the app.	Conducting market research to understand user needs and preferences and creating a user-friendly interface and a seamless user experience. Develop a comprehensive marketing strategy that includes online campaigns, partnerships with local businesses, and promotions. Implement a feedback mechanism to gather user input and continuously improve the app.
System Integration Failures: Might encounter difficulty in integrating AI, image recognition, geotagging, and mapping technologies seamlessly.	Conduct thorough research and testing of APIs and software development kits (SDKs) before full integration. Furthermore, integrate components incrementally and test each integration thoroughly before moving on to the next. Also implement unit testing, integration testing, and system testing to catch and resolve issues early.
Data privacy and security breaches involving unauthorized access, use, or disclosure of sensitive user data.	Use strong encryption methods to protect data at rest and in transit. Ensure compliance with data protection regulations such as GDPR and NDPR. Also educate users about best practices for protecting their accounts, such as using strong passwords and

	recognizing phishing attempts.
Scalability issues may arise when the application grows and is unable to handle increased load and user traffic.	Design the application with scalability in mind. Utilize cloud services that can easily scale up resources based on demand (e.g., AWS, Google Cloud, Azure). Conduct regular performance and load testing to ensure the application can handle increased traffic.
Intellectual property (IP) issues may arise when there are disputes over the ownership, usage, or rights to the app's technology, content, or branding. This can lead to legal challenges and potentially significant financial losses.	Conduct thorough research to ensure that all software components, technologies, and content used in the app are properly licensed and do not infringe on existing IP. Draft clear agreements with all stakeholders regarding IP ownership and usage rights.

1.7 Scope/ Project Organization

This document outlines the activities and processes involved in developing a mobile application designed to connect consumers with nearby vendors. The app aims to enhance the shopping experience for consumers while boosting the visibility of local vendors. The scope and organization of the project are outlined as follows:

1.7.1 Scope

The scope of the FindNearMe app project encompasses the development, deployment, and maintenance of a mobile application designed to connect buyers with local sellers through advanced technologies. The app will facilitate local commerce by providing features such as AI-powered image recognition, geotagging and mapping.

Key Functionalities include:

1. Creation of separate accounts for buyers and sellers. As well as profile management for both account types.
2. Product listings, categorization and geotagging. Sellers can also upload pictures and details of their products.
3. AI-Powered image scanning and matching of scanned products with listings from local sellers.
4. Reservation of items for a limited time, so buyers can reserve items they want before they get to the seller's location.
5. Integration with mapping services like Google Maps to provide directions to seller locations, and display nearby sellers on a map.

6. Allowing buyers to rate and review sellers and displaying ratings and reviews on seller profiles.
7. Real-time notifications for new messages and nearby product listings.

<u>1.7.2 Project Organization</u>
The project will be organized into distinct phases to facilitate systematic development and ensure comprehensive coverage of all necessary tasks and deliverables.

Phase 1: Project Planning and Initiation

Objectives:

- Define project scope, objectives, and deliverables.
- Develop a detailed project plan and timeline.

Phase 2: Requirement Gathering and Analysis

Objectives:

- Conduct market research and gather user requirements.
- Define functional and non-functional requirements.

Phase 3: Design and Prototyping

Objectives:

- Design the user interface (UI) and user experience (UX).
- Define the system architecture and technology stack.

Phase 4: Development

Objectives:

- Implement front-end and back-end features.
- Integrate AI, geotagging and mapping API.

Phase 5: Testing

Objectives:

- Conduct unit testing, integration testing, and system testing.
- Perform usability testing and gather feedback.

Phase 6: Deployment

Objectives:

- Deploy the app to app stores and servers.
- Monitor the app for issues and perform necessary updates.

Phase 7: Maintenance and Support

Objectives:

- Provide ongoing support and maintenance.
- Gather user feedback and implement improvements.