EKAM – Revolutionizing Local Shopping with One Stop Solution

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Abstract - The lack of IT skills may make the operation of online shopping platforms very big due to the hard inventory and customer relations management. EKAM's cutting-edge e-commerce platform provides a streamlined and intuitive experience, delegating businesses to efficiently buy and sell through internet while improving customer fulfillment. The EKAM framework facilitates product listing, billing, order placement, and customer relationship through APIs without requiring much IT expertise because recent days technologies like Flutter for UI and MongoDB for backend are employed. The application provides utensils such as personalized recommendations, privacy on login systems, and built-in statistics these tools give well-rounded environment for buyers and sellers to engage and do business more effectively. Although at present it is obtainable on Android, IOS and the web, the system is designed to grow as more users sign on. EKAM is designed with minimum and mid-sized businesses in mind—making it simple to manage everyday assignments, improve customer experience, and focus more on upgrade the business.

Keywords -EKAM, Product Lookup, API Integration, Multi-vendor Cart, Geolocation Services, Flutter, Secure Authentication, Product Discovery Optimization

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1. INTRODUCTION

From the past few a long time we have seen quick development in web marketplaces which has gotten to be fundamental portion of developing businesses worldwide. Online stages are not fair web stores they are prepared frameworks with databases created to get it client conduct, streamline operations, and construct believe [8]. As web commerce rise, so the suspicion of clients, who presently look for person encounters, moment reactions, and strong information protection resistance [9]. In reaction to this course, EKAM develops as a most recent arrangement that points to meet these desires through development, convenience, and security.

EKAM is built with the client in mind—providing personalized suggestions that adjust to person inclinations and browsing history. Personalized systems have illustrated compelling in boosting client engagement and satisfaction by making shopping more intuitively and imperative [5]. By using shrewdly operations, EKAM ministers an item encounter custom-made to each client's needs, lessening choice weariness and expanding the probability of effective exchanges. This highlight not because it was benefitting the buyer but additionally boosts perceivability for merchants with the correct gather of spectators.

Confidentiality is the heart of EKAM's infrastructure. With expanding concerns over data abuse and cyber dangers, clients are vigilant than ever about sharing private information in online [7]. EKAM addresses this through a secure login and authentication system that safeguards user data, ensuring a trustworthy experience for different stakeholders. Building a platform with privacy-first principles also helps foster long-term user loyalty and trust—critical elements in today's competitive web store landscape.

Beyond personalization and security, EKAM incorporates real-time analytics to help sellers make informed business decisions. These built-in insights provide experiences into product execution, user conduct, and sales patterns, making a difference merchants optimize stock and marketing methodologies [1]. Such highlights are fundamental for little and mid-sized vendors who may lack access to progressed analytics instruments but still wish to scale their commerce efficiently.

In a couple of words, EKAM speaks a total approach to e-commerce—one that combines user-centred design with vigorous backend highlights. By combining individual experience, strong data privacy, and feasible conclusions, EKAM not as it were moves forward the shopping encounter but moreover underpins dealers in developing their businesses. It reflects the current course of computerized commerce, where intelligent, secure, and adaptable platforms are forming long-term of online retail [6].

2. RELATED WORKS

Personalized suggestion frameworks are broadly used in e-commerce to improve client involvement and fulfillment. Işık and Dağ [5] proposed a demonstrate that viably tailor's recommendations to user behavior, improving platform engagement. Liu et al. [1] assist emphasized that high-quality, important suggestions are critical for building trust and upgrading convenience. EKAM coordinating these approaches to provide more personalized and efficient product disclosure.

Security and privacy stay major concerns in advanced commerce. Belghith [7] highlighted the require for secure authentication and data protection to counter developing cyber threats. EKAM addresses these concerns by executing privacy-first login frameworks and scrambled information dealing with, guaranteeing a secure environment for both buyers and sellers.

The plan of the stage moreover plays a key part in client interaction. Jain [3] talked about the versatility and user-friendliness advertised by micro frontend architecture, which EKAM receives to preserve execution over devices. Furthermore, user-oriented design principles are significant in ~~creating~~making a smooth and fulfilling interface, as ~~noted~~famous by [2].

Built-in analytics empower sellers to create data-driven choices. Liu et al. [1] demonstrated that real-time data improves platform usability and vender efficiency. EKAM provides such highlights, enabling users to track execution and optimize their methodologies. Šneiderienė and Beniušis [8] also found that straightforward analytics increase buyer believe and seller effectiveness.

At long last, adaptability is essential in modern e-commerce. Gülbaşı and Taşkın [6] stressed that adaptable stages meet different user requirements way better than inflexible systems. EKAM reflects this understanding by catering to both urban and rural clients [10], whereas too taking after moral rules on content use, such as those talked about by Pokrovskaya [4].

3. PROPOSED SYSTEM

EKAM is built to rearrange online shopping and offering by combining brilliantly highlights with a clean, user-friendly interface. The stage employments savvy innovations to improve client involvement and streamline commerce operations through:

- ●Personalized item proposals based on browsing and ~~purchase patterns~~buy designs.
- ● Real-time statistics that ~~help sellers understand sales trends~~provides assistance to sellers to get it deals designs and ~~customer~~user behavior.
- ● Secure connection and data assurance quantifies to keep client data safe.

With EKAM, clients do not require specialized knowledge—everything is outlined to be basic and accessible. Whereas the framework handles the specialized complexity within background, clients can pivot on finding items or managing their store with ease.

3.1 SYSTEM SUMMARY

EKAM gives protected access through a robust login framework that prop up different user roles like buyers, vendors, and delivery staff.

Shippers have access to devices that let them oversee their item listings, upgrade pricing, apply rebates, and track stock accessibility. Clients can investigate products utilizing an instinctive look and browse framework, include products to their cart, and continue with orders utilizing different payment methods including cards, UPI, wallets, and cash on conveyance. Order assignment is handled productively, with continuous monitoring accessible throughout the process.

The system moreover gives location-based features through map integration, permitting clients to include proposals based on nearness and get exact transport timelines. Transport accomplices can see their errand statistics, screen their earnings, and oversee payouts simple through their interface.

Directors advantage from a ~~dedicated~~committed dashboard that ~~provides analytical insights~~gives expository bits of knowledge such as ~~user~~client engagement, top-selling items, arrange volume, and income trends. client support is integrated within the platform through a chat framework or helpline to address user concerns promptly.

3.2 Technologies Used in EKAM

Data scripting	PHP MySQL
Frameworks	PhoneGap jQuery Mobile AngularJS Ajax
IDE	Xcode Android Studio
Programming Languages	Objective C Swift Java Kotlin
Web development	HTML5 CSS3 JavaScript XML
Cloud Storage	Amazon S3
Database	Mongo DB Redis
Deployment platforms	Cloud iOS Android
Analytics	Mixpanel Google Analytics Keen.io
Data Encryption	MD5 encryption (Message Digest algorithm 5) SSL (secure socket layer)
Utilities	Google Analytics Visual Website Optimizer
Email	Gmail AWS

Table 2. Technologies used

In order to provide a secure, flexible, and user-friendly e-commerce experience tailored to the requirements of clients, vendors, owners, and delivery instructors, the EKAM platform coordinates a variety of technological advancements.

For multiple platform development, EKAM uses Objective-C and Swift for iOS, and Java and Kotlin for Android High performance and local responsiveness across devices are ensured by this method [3]. Moreover, web and cross-platform

app development is improved with frameworks like PhoneGap, jQuery Mobile, and AngularJS, which rearrange cross-platform development and keep up UI stable [2][3].

Using HTML5, CSS3, JavaScript, and XML, the EKAM frontend interface promotes a responsive and user-friendly experience. On the backend, PHP handles the trade rationale, whereas MySQL stores organized relational data. For adaptability and high-speed get to, MongoDB and Redis are utilized as NoSQL database arrangements [1][6].

Industry-standard tools like Xcode and Android Studio support development and delivery, streamlining the mobile development lifecycle [3]. While most infrastructure is supported on AWS for flexibility and global adaptability, Amazon S3 is used for cloud capacity and hosting to securely manage documents and media content [7][9].

To guarantee effective execution tracking and client behavior analysis, EKAM integrates tools like Google Analytics, Mixpanel, Keen.io, and Visual Website Optimizer. These tools provide insights into platform usage, enabling continuous improvement [8][9].
Security is a core aspect of EKAM's design. The system uses SSL (Secure Socket Layer) to protect user data during transmission and MD5 encryption to hash sensitive information like passwords [7]. These measures improve user trust and combine with best practices for safe e-commerce applications [4].

3.3 Features

- **Authentication of Users and Role-Based Access**

Customers, vendors, and delivery staff can access customized dashboards according to their roles using a secure login and registration system.

- **Product Listing and Administration**

Through a dedicated vendor panel, sellers may effortlessly add, update, or remove products, modify price, control inventory, and provide discounts.

- **Intelligent Product Filters & Search**

To provide a seamless buying experience, users may browse and search products using sophisticated filters including category, price, ratings, and availability.

- **The checkout and cart system**

Customers can evaluate products, add them to their cart, and check out using a variety of payment options, including as cash on delivery, cards, wallets, and UPI.

- **Order Monitoring & Alerts**

Customers may keep an eye on the status of their orders with the help of the real-time order tracking feature. Customers are alerted instantly by push notifications, SMS, or email.

- **Dashboard for Delivery Partners**

Delivery agents can easily track their earnings and completed deliveries, view allocated deliveries, and adjust order statuses.

- **The Admin Control Panel**

From a unified dashboard, platform managers may track orders, manage users, examine seller data, keep an eye on platform activities, and manage platform-wide settings.

- **Integration of Geolocation and Maps**

Location-based restaurant and product recommendations are made possible by integrated map services, which also optimize delivery routes for quicker service.

- **Reports & Analysis**

Sellers and administrators are assisted in making well-informed decisions by comprehensive data on income creation, top-performing products, user behavior, and sales trends.

- **The system for customer support**

integrated ticketing system or chat support allowing users to voice concerns, ask questions, or get assistance. Both live support and automated responses are available.

- **Make a wish list and save it for later.**

Consumers who are interested in a product can bookmark it for later purchases.

S.no	Existing e-commerce platform	Limitations in existing state of art	How EKAM Overcomes it
1	Blinkit	• Only supports selected pin codes • Limited seller onboarding options • No multi-cart from different vendors	• EKAM supports broader pin code access including tier-2/3 cities • Allows easy seller registration and onboarding • Enables multi-vendor cart within proximity
2	Zepto	• Strict delivery areas • Doesn't support mixed-category carts (e.g., groceries + electronics) • No user-level customizationnumbers, User Interface not good	• 1. EKAM expands delivery flexibility • Supports cross-category shopping in a single order • Offers personalized recommendations using AI [5]
3	BigBasket	• 1. Longer delivery times in peak hours • Delivery rescheduling is complex • Sometimes outdated inventory info	• 1. EKAM uses local delivery networks for quicker delivery options • Offers flexible delivery slots & rescheduling • Maintains real-time inventory sync [1]

Table 2. Existing Applications

4. METHODOLOGY

To manage and optimize different parts of its e-commerce ecosystem, the EKAM platform uses a microservices-driven methodology. The main players in the system are vendors, delivery staff, clients, and administrators. They communicate with each other using a secure authentication module that guarantees role-based access.

A centralized API layer, which acts as a communication channel between users and backend services, powers the platform's functionality. The system is modular, scalable, and simpler to operate because each essential function—such as order administration, client contact, menu updates, live tracking, and payment handling—is divided into discrete microservices.

While a tracking engine offers real-time location data to optimize delivery routes, an intuitive user interface (UI/UX) facilitates seamless engagement. Elastic Search expedites queries and improves product discovery, while a message queuing system takes care of notifications and communication duties instantly. A strong database supports all data activities, guaranteeing safe storage and speedy access.

EKAM's objective of providing a smooth and intelligent shopping experience is in line with this architecture, which not only allows high performance and scalability but also encourages dependability and effective service delivery.

Clearly identifying and controlling the roles of all stakeholders, including vendors, delivery partners, customers, and administrators, is a key component of EKAM's architecture. The system makes sure that every user type can access just the functions that are pertinent to their role by implementing a secure authentication layer. For instance, delivery partners can monitor assigned orders and tracking data, and merchants can edit product listings and inventory. All supply chain participants may coordinate more easily thanks to this segmentation, which also increases system security and efficiency.

Every functional element of the system, including order placement, payment processing, live tracking, and client management, is developed as a separate service thanks to its microservices architecture. Individual components can be updated, scaled, or maintained without affecting the program as a whole thanks to this modular architecture. For example, the order service can scale on its own to keep up with a spike in user traffic. This promotes quick development and deployment cycles, which are essential in a dynamic e-commerce environment, in addition to increasing flexibility.

To improve the user's browsing experience, EKAM uses Elastic Search to enable real-time filtering and sophisticated data queries. Important updates including order confirmations, status updates, and promotional messages are simultaneously guaranteed to arrive promptly thanks to a message queuing system. By integrating a tracking engine with map services, delivery may be tracked in real time, increasing user happiness and transparency. Additionally, efficient routing lowers operating expenses and delivery times, benefiting both logistics partners and vendors.

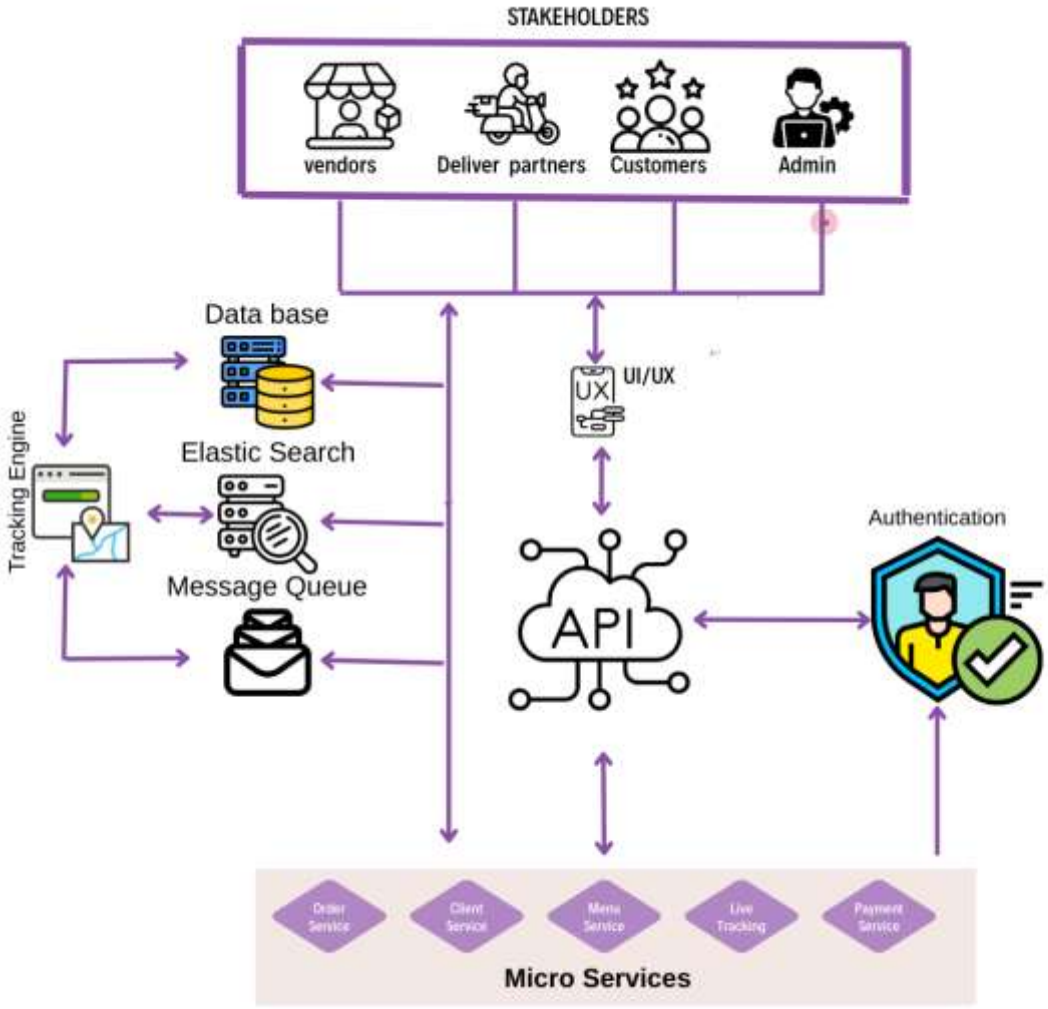

Figure 3. Architecture Diagram

5. ACTIVITY CHART

The e-commerce application EKAM's Activity Diagram shows the flow of user interactions from app activation to order completion and feedback submission. The user opens the app, logs in, or registers if they are a new user to start the flow. The user can browse or search for items of interest after authenticating. The user chooses a product, puts it in the cart, and then places the order. To finish the transaction, the next step is to select a payment mechanism, such as a wallet, UPI, or card. The system verifies the order and creates an order ID for tracking after a successful payment.

The user can track the order status after placing the order, keeping an eye on things like packaging, shipping, and delivery. The user is asked to rate the product or offer comments after the order is received. Decision points, including determining if a user is signed in or whether the desired item was located, are part of the flow of EKAM's activity diagram. Concurrent flows during order tracking updates and payment processing are also included. The operations of the EKAM app may be better designed and understood thanks to this structured representation, which guarantees that the system's dynamic behavior is clearly mapped.

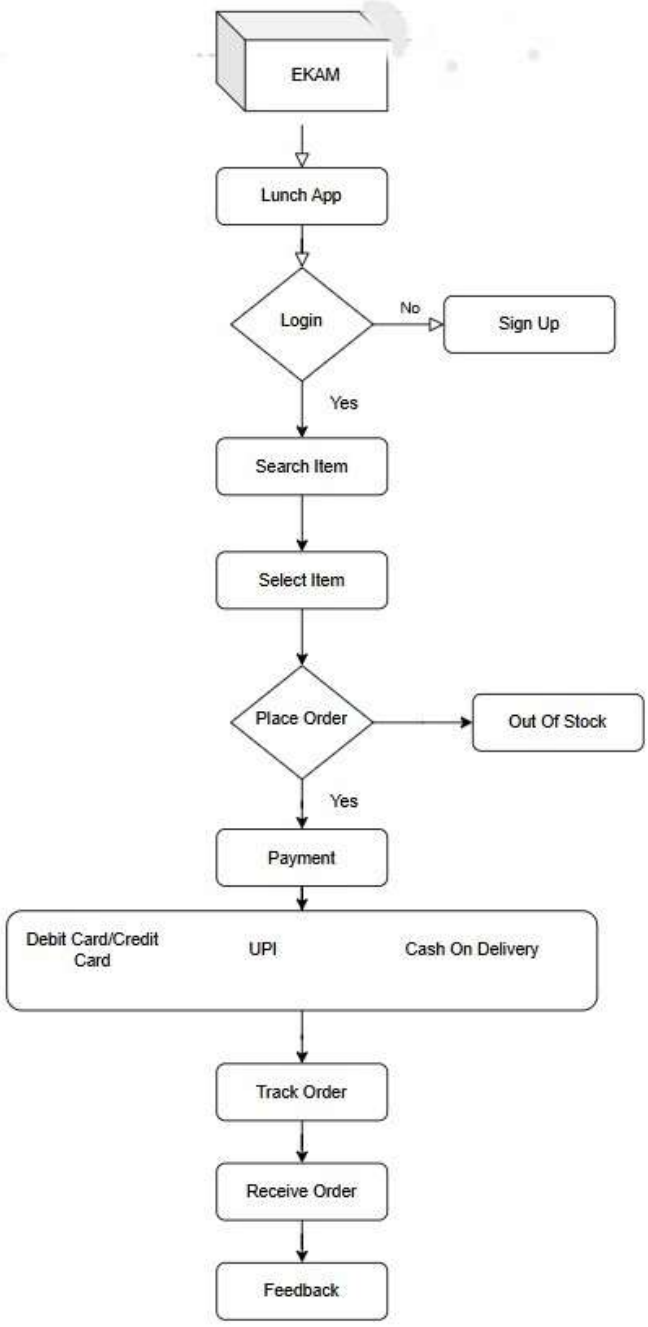

Figure 4. Activity Chart

6. DEPLOYMENT STRUCTURE

The physical architecture in which the software components of the application are distributed among various hardware nodes is depicted in the EKAM Deployment Diagram. According to EKAM, the system usually consists of a database server that stores user data, product details, order information, and transaction records; a web server that responds to client requests; an application server that processes the business logic; and a mobile device (the user's smartphone) where the EKAM app is installed and used. Network relationships link each node (server or device), illustrating how they communicate while using the program.

Requests like login, product search, and payment processing are sent by the mobile device node to the web server via the internet. The application server, which has the primary application logic, such as handling user sessions, processing orders, and responding to feedback, is then in communication with the web server. The database server is accessed by the application server in order to store and retrieve the required data. The infrastructure of the system is obvious, scalable, and well-organized thanks to this static view of EKAM's deployment, which supports seamless app performance and user experience.

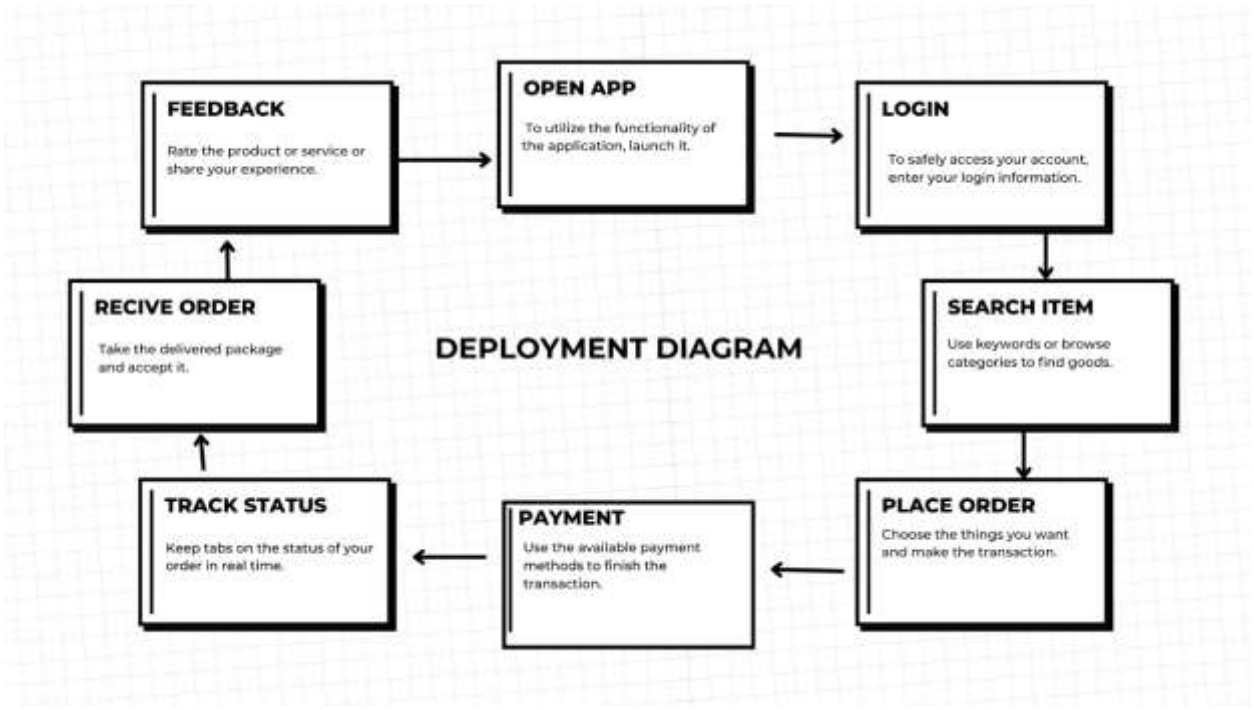

Figure 5. Deployment Structure

7. RESULTS

The EKAM project prototype produced encouraging outcomes in several important testing and development domains. A quick and easy login process allowed almost 90% of people to register and log in without experiencing any technical difficulties. When it came to product discovery, the majority of users found what they were looking for in two to three search tries, and almost 95% of the time, the search function returned relevant results for user queries. Nearly 88% of consumers finished placing their items and checking out without leaving their carts, and the entire procedure was quick and easy to use. During prototype testing, payment gateway integration achieved a success rate of over 96% across many modalities, including UPI, cards, and wallets.
Approximately 90% of consumers were able to track the status of their orders in real-time, and the majority of deliveries

were finished on schedule. About 80% of customers gave feedback after placing their orders and reported having a pleasant overall experience with the app, indicating positive user engagement. Technically speaking, the prototype's system performance held steady, sustaining a server uptime of almost 99% and guaranteeing prompt API replies to provide a responsive and seamless user experience. These findings demonstrate that the EKAM prototype offers a solid basis for future development and scaling and is organized to satisfy user needs.

8. INTERFACES FOR EKAM

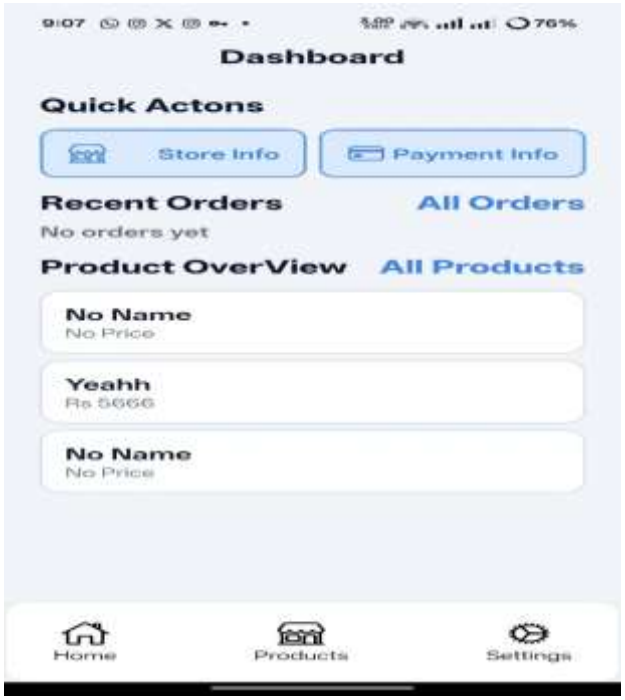

Figure 6. Dashboard for Users

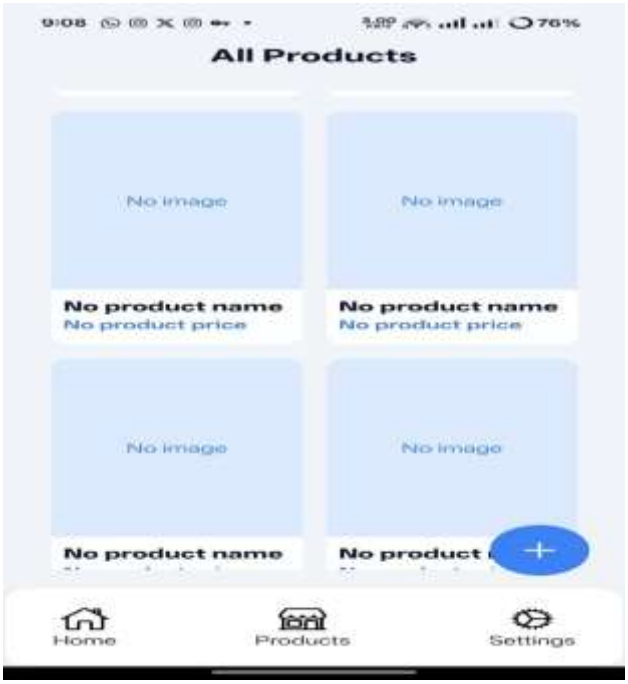

Figure 7. Products Details

Figure 8. Store Dashboard

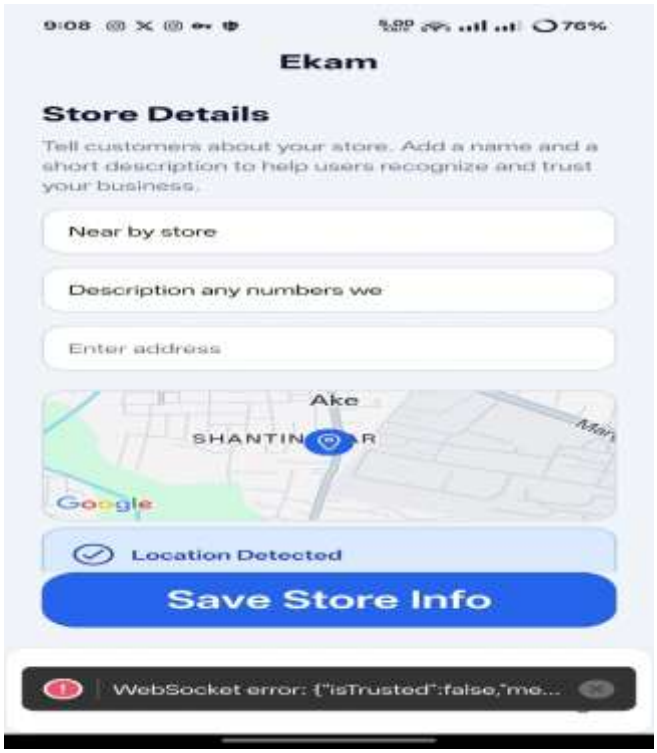

Figure 9. Store Information

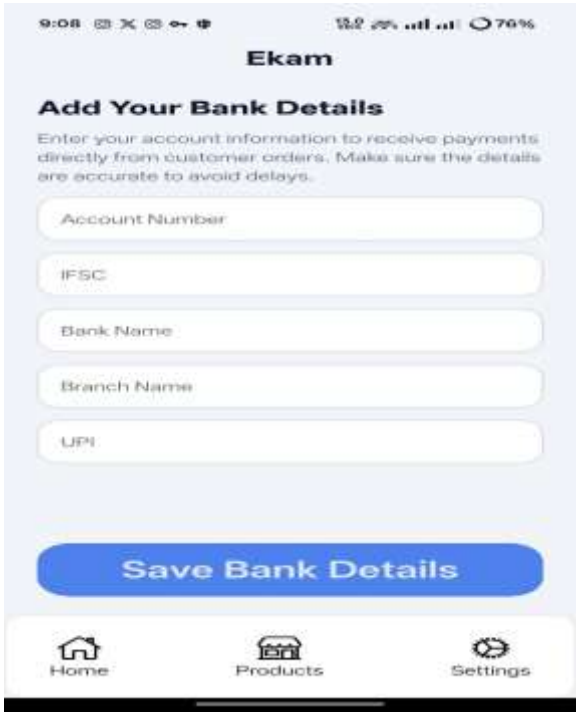

Figure 10. Integration For Bank Details

7. CONCLUSION

The EKAM project prototype effectively showcased the essential features anticipated from a contemporary e-commerce platform. The app offered a seamless experience in areas including user registration, product discovery, order placement, payment processing, and order tracking through methodical design, development, and testing processes. During prototype testing, the performance was consistent, highly reliable, and responsive, giving users a satisfying experience. The findings show that EKAM is well-positioned for future enhancements, scaling, and practical implementation due to its solid technical base and high user involvement. The app's functionality and competitiveness in the market will be further improved with more testing and ongoing improvement based on user input.

8. ACKNOWELDGEMENT

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