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ESell-Hub : Building Trust Through Verified Buying and Selling

[1]Kunal Dhurpate , [2]Rahul Gaikwad, [3]Arya Arora, [4]Pratik Garud

Prof. Mahesh Navale [5]

Department of Computer Engineering,

Department of Computer Engineering & Zeal College of Engineering and Research, Pune, India

Abstrxact : eSell-Hub is an innovative e-commerce platform designed to foster trust between buyers and sellers through a robust verification process and thirdparty mediation. In today's digital marketplace, establishing credibility is crucial, yet challenging, as participants often lack prior familiarity. eSell-Hub addresses this by implementing a verification system for both parties, ensuring that listings are legitimate and that buyer identities are authenticated. Additionally, a thirdparty mediator is incorporated to monitor transactions, manage disputes, and facilitate secure payments. This approach minimizes fraud risks, builds mutual confidence, and encourages a transparent transaction environment. The platform's distinctive framework not only enhances user security but also streamlines the online trading process, promoting a safer and more reliable e-commerce experience for all participants.

Keywords **: Verified buying and selling, Third-party mediation, E-commerce trust, Fraud prevention, Secure payments,usersecurity.**

1.INTRODUCTION

software has become a crucial factor in the success of industries worldwide. From images and videos to code and applications, creators, developers, and businesses are increasingly reliant on advanced tools to meet the ever-growing need for rapid and efficient content production. However, the tools available today often specialize in one domain-image generation, code development, or video production-leading to inefficiencies and fragmented workflows. This disconnect slows down processes, requires the use of multiple platforms,and increases the costs associated with content creation.

The growth of e-commerce has In an era where digital content drives engagement, communication, and innovation, the demand for high-quality media and revolutionized the way individuals buy and sell goods, providing convenience and access to a global marketplace. However, this digital shift has brought challenges, particularly in establishing trust between unfamiliar buyers and sellers. Issues like fraudulent listings, unreliable buyers, and unresolved disputes create uncertainty and reduce confidence in online transactions. To address these challenges, eSellHub introduces a secure platform that emphasizes transparency, credibility, and user protection.).

2.LITERATURE REVIEW

As e-commerce has surged in recent years, studies have highlighted the critical role of trust and security in digital marketplaces. Researchers have observed that a lack of familiarity between buyers and sellers contributes to concerns over fraud, reliability, and privacy, which can negatively impact user experience and deter participation in online transactions. Addressing these issues, several models and frameworks have emerged, focusing on identity verification, transaction monitoring, and dispute resolution to strengthentrust.

Research on trust-building mechanisms suggests that verification systems significantly reduce fraud by ensuring that all parties are authentic and credible. Studies indicate that identity verification, such as requiring government-issued IDs or digital authentication, deters dishonest actors and promotes safer interactions (Chen & Dhillon, 2003). Additionally, third-party mediation in e-commerce has proven effective in enhancing transaction security and resolving disputes by providing an unbiased entity to monitor and intervene when necessary (Pavlou & Gefen, 2004).

Payment security is another critical factor in developing trust within online marketplaces. Previous studies have shown that secure payment methods, often involving third-party intermediaries, foster user confidence by ensuring that transactions are transparent and safeguarded from interference or fraud (Gefen, Karahanna, & Straub, 2003). The literature highlights how integrating third-party payment systems, such as escrow services, reduces transaction risk, enhances transparency, and encourages user engagement.

Furthermore, user feedback and reputation systems are established tools for building trust, allowing users to review each other's transaction history and conduct. These systems provide insight into each party's reliability, but they can also be vulnerable to manipulation. As a result, combining verification and mediation mechanisms has emerged as an effective strategy, emphasizing the need for verified and unbiased mediation to foster secure online marketplaces (Ba & Pavlou, 2002).

Identity verification is widely regarded as a cornerstone of trust-building in online platforms. According to research, fraud and misinformation can be significantly reduced when digital marketplaces implement rigorous identity checks for users, such as verifying email addresses, linking profiles to social media, or utilizing biometric data (Zhou et al., 2011). This helps create a layer of accountability, ensuring that participants are genuine individuals or entities, thereby enhancing transaction security.

Third-party mediation also plays a crucial role in ecommerce platforms, helping resolve disputes and creating an atmosphere of fairness. A neutral intermediary, such as a third-party mediator, assists in addressing issues that may arise during a transaction, minimizing potential conflicts and reducing the likelihood of dishonest behavior. Studies have shown that platforms employing mediation services report higher user satisfaction, as conflicts are more easily resolved in a fair and unbiased manner (Koehn, 2003).

The literature also highlights the importance of secure payment systems in fostering trust within online marketplaces. A study by Gefen et al. (2003) found that consumers are more likely to complete transactions on platforms that offer reliable and secure payment methods. Payment security solutions, such as encryption and escrow services, are key factors in preventing fraud and ensuring that funds are only transferred once both parties are satisfied with the transaction. Escrow, in particular, acts as a trusted intermediary by holding funds temporarily and releasing them only after all parties have fulfilled their obligations, thereby reducing risk for both buyers and sellers.

Overall, the literature underscores that a combination of verification, third-party mediation, secure payment systems, and reputation mechanisms creates a more comprehensive approach to building trust in digital marketplaces. eSell-Hub leverages these insights by developing a platform with robust identity verification, impartial mediation, and secure payment features to create a safe and reliable environment for buyers and sellers. This approach with research recommendations, providing users with a trusted platform designed to enhance security and promote transparent and fair e-commerce interactions.

In summary, the literature emphasizes that trust in ecommerce relies on multi-layered strategies, including verification, mediation, and secure payment systems, to mitigate risks and ensure safe interactions. Drawing from these insights, eSell-Hub's model incorporates these elements, implementing a verified buying and selling platform with third-party mediation to enhance user trust and provide a safe and reliable digital marketplace

3. METHODOLOGY

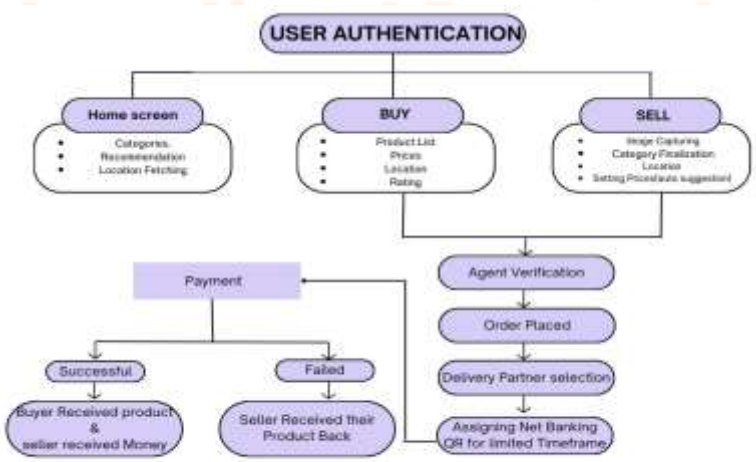


Fig -1: System Architecture

The diagram illustrates a system designed for buying and selling products, likely within a marketplace or ecommerce platform. Here's a breakdown of its components and their interactions:

User Authentication:

Home Screen: Users can access categories, recommendations, and location-based suggestions.

Buy: Users can view product lists, prices, and ratings.

Sell: Users can capture images of products, finalize categories, set locations, and potentially receive automated price suggestions.

Payment: Users can initiate payment for purchases. Upon successful payment, the buyer receives the product, and the seller receives the money. In case of failed payment, the seller gets their product back.

Payment and Order Fulfillment: Payment: Once a purchase is made, the system processes the payment. If successful, the buyer receives the product, and the seller receives the payment. In case of failed payment, the seller retains their product.
Agent Verification and Order Placement: Orders are verified by agents (likely to ensure authenticity or compliance with platform policies). Once verified, orders are placed, and delivery partners are selected to fulfill the order.
Delivery Partner Selection: The system selects suitable delivery partners based on factors like location, delivery time, and cost.
Net Banking QR Code: For limited-time offers or special promotions, the system may generate net banking QR codes for quick and secure payments Additional Considerations:
Security: The system should have robust security measures to protect user data, prevent unauthorized access, and ensure secure transactions.
Scalability: The system should be designed to handle increasing user load and transaction volume as the platform grows.
Error Handling: The system should have mechanisms to handle unexpected errors or failures, such as payment processing issues or delivery delays.
User Experience: The system should prioritize user experience by providing a user-friendly interface, intuitive navigation, and clear information.
Advanced Recommendation System: Implement a more sophisticated recommendation system that considers user preferences, browsing history, and purchase behavior to provide highly relevant suggestions.
Social Features: Incorporate social features like user reviews, ratings, and community forums to foster engagement and build trust among buyers and sellers.
Mobile Optimization: Ensure the system is optimized for mobile devices to provide a seamless experience for users on the go. Integration with Logistics Providers: Integrate with multiple log

4. TECHNOLOGY USED

1.Programming Language:

- Dart-Used to build the frontend with Flutter

2.Framework:

- Flutter-For developing cross-platform mobile (and possibly web) apps with a smooth UI.

3. Database / Backend:

- Firebase
- Cloud Firestore: For real-time database and storage of product listings, user info, chats, etc.
- Firebase Authentication: For secure user sign-in and identity management.
- Firebase Storage: For uploading and managing product images

4.IDEs

- Visual Studio Code
- Android Studio.

5.REST APIs :

- Communication between client and server
- All key operations like task updates, user authentication, chat message sync,

6.Git & GitHub

- Version Control and Collaboration
- Git ensures source code management and team collaboration, while GitHub enables issue tracking, pull requests, and continuous updates.

7.Design Tools

- **Figma**: Used for creating UI/UX wireframes and high-fidelity prototypes.
- **Canva**: Used for designing banners, icons, and other visual content for the app interface and promotional materials.

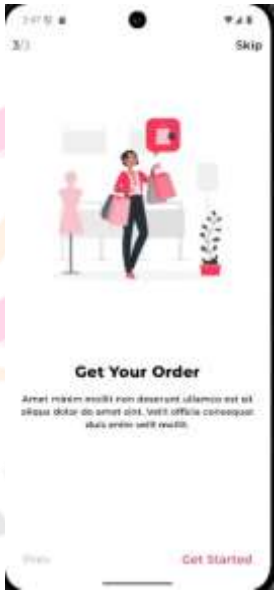
5. IMPLEMENTATION

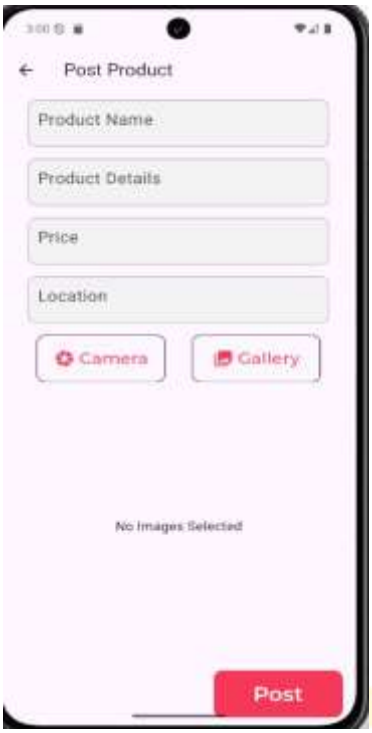
app is a cross-platform mobile application developed using **Flutter (Dart)** for the frontend, with **Firebase** serving as the backend. The app leverages Firebase Authentication for secure user login and signup, Cloud Firestore for storing essential data such as users, products, and chats, and Firebase Storage for uploading and managing product images

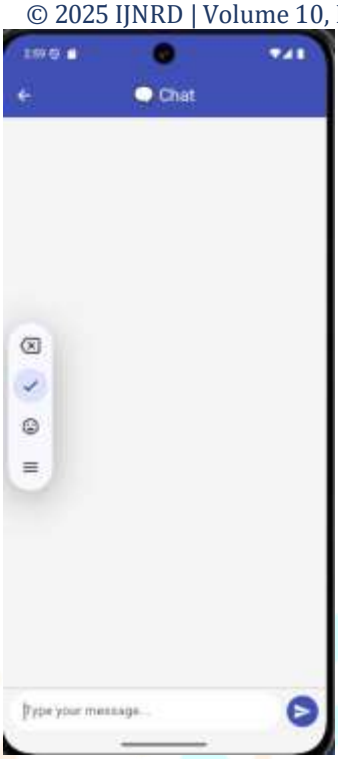
A key feature of the platform is the **mediator role**, which plays a vital part in maintaining trust and transparency between users. The mediator is responsible for verifying products before they are listed to ensure authenticity, managing a secure payment system where funds are held until both parties are satisfied, and fairly resolving any disputes that may arise between buyers and sellers.

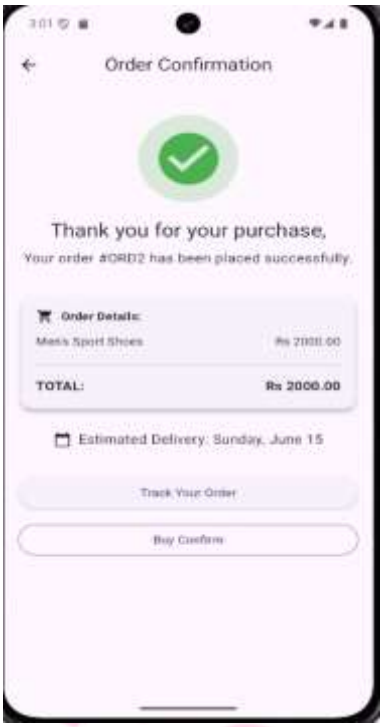
The core user flow begins with users registering or logging into the app. Sellers can then post items for sale along with images, while buyers can browse these listings and initiate chats within the app. Payments are facilitated through the mediator system, ensuring safety and accountability. Verified listings and responsive admin support further enhance trust, making the platform a reliable space for transactions.

Below are some **screenshots** highlighting core functionalities such as:









6. Feature:

Full-Text Keyword Search:

- Enables efficient retrieval of listings using indexed product titles and descriptions, supporting quick and relevant search results.

Third-Party Mediator Verification:

- Introduces an independent verification layer where a trusted third party authenticates product quality and seller legitimacy before finalizing transactions. This builds user trust and reduces fraud.

Geo-Location Based Results:

- Utilizes user location data to prioritize nearby listings, improving convenience for local transactions.

Personalized Recommendations:

- Recommends products using collaborative filtering and user interaction history to improve engagement and relevance.

CONCLUSION

In conclusion, eSell-Hub aims to redefine the online buying and selling experience by prioritizing trust, security, and user satisfaction. Through the implementation of a rigorous verification system and the integration of a third-party mediation service, the platform addresses common challenges faced in ecommerce, such as fraud and disputes. This innovative approach not only enhances the safety of transactions but also fosters a reliable environment for users to engage confidently.

Ultimately, eSell-Hub is well-positioned to become a trusted destination for online commerce, ensuring that users can navigate the digital marketplace with confidence and ease. By maintaining a strong commitment to security and user experience, eSell-Hub not only addresses the immediate concerns of online transactions but also lays the groundwork for a more transparent and reliable future in e-commerce.

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