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Revolutionizing Student Accommodation: A Mern Based Rental System for Seamless Property Management

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Abstract - In recent years, the rapid growth of student populations in urban and semi-urban areas has intensified the demand for affordable, safe, and reliable accommodation. Traditional methods of finding student housing are often inefficient, unorganized, and prone to fraudulent listings due to the lack of verification and centralized management. To address these challenges, this project proposes a smart, technology-driven rental platform that simplifies the process of discovering and managing student accommodations. The system is designed as an Android-based application that enables students to search for rental rooms based on location, budget, and preferences while ensuring secure access through user authentication and document verification mechanisms.

The proposed platform integrates real-time database services to manage rental listings, user profiles, and communication between students and property owners. Location-based features allow users to view nearby essential facilities such as hospitals, supermarkets, and transport services, supporting informed decision-making. An interest-based interaction mechanism and optional administrative control further enhance transparency, trust, and system reliability. Overall, the system offers a scalable, secure, and user-friendly solution that modernizes student accommodation management and improves the rental experience for both students and property owners.

Keywords- Student accommodation, rental management system, Android application, Firebase authentication, document verification, location-based services, room listing, real-time database, property management, student housing platform

I.INTRODUCTION

The rapid expansion of higher education institutions and increasing student migration toward urban and semi-urban regions have significantly intensified the demand for suitable student accommodation. Students relocating for academic purposes often face difficulties in identifying affordable, safe, and verified rental housing within a limited timeframe. Conventional accommodation search methods lack structure and reliability, making the process stressful and inefficient. The absence of a centralized and trusted digital platform further complicates decision-making for students unfamiliar with new locations [1][2].

Traditionally, students depend on local brokers, newspaper advertisements, notice boards, or social media groups to find rental rooms. These approaches are largely informal and unregulated, often resulting in misleading information, hidden costs, and fraudulent listings. In many cases, students encounter mismatches between advertised and actual room conditions. Such systems also lack accountability, making it difficult to verify property authenticity or tenant identity, which raises safety and trust concerns for both students and property owners [3][4].

With the rapid advancement of mobile technologies and widespread smartphone adoption, digital platforms have emerged as effective tools for addressing real-world problems. Mobile applications provide accessibility, convenience, and real-time interaction, making them ideal for solving accommodation-related challenges. Android, being one of the most widely used mobile operating systems, offers a flexible and scalable environment for developing user-centric applications that cater to diverse student requirements [5][6].

Cloud-based backend services have further transformed mobile application development by enabling real-time data storage, synchronization, and secure authentication. Firebase, a Backend-as-a-Service (BaaS) platform, offers integrated services such as authentication, cloud databases, and storage that simplify development while ensuring scalability and security. These features are particularly beneficial for rental management systems that require instant data updates and reliable user communication [7][8].

A critical issue in student accommodation systems is the lack of user and document verification. Unverified platforms expose students to safety risks and property owners to unreliable tenants. Integrating document verification mechanisms, such as student ID or institutional proof uploads, enhances trust and authenticity within the system. Secure cloud storage and controlled access mechanisms ensure that sensitive data is handled responsibly, addressing privacy and security concerns [9][10].

Location plays a vital role in accommodation selection, especially for students who prioritize proximity to educational institutions and essential facilities. Location-based services using digital maps and geolocation APIs

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enable users to search accommodations in preferred areas and visualize nearby amenities. This contextual information significantly improves decision-making by allowing students to assess accessibility, convenience, and overall livability of a location [11][12].

In addition to accommodation details, access to nearby facilities such as hospitals, supermarkets, transportation hubs, and banks is essential for daily student life. Integrating nearby facility information into rental platforms enhances usability and reduces the effort required to evaluate an area. Such features transform a basic rental listing system into a comprehensive decision-support platform tailored to student needs [13][14].

Communication between students and property owners is another critical aspect often overlooked in traditional systems. Delayed responses, lack of transparency, and dependency on third-party brokers hinder effective interaction. Real-time communication features, such as in-app messaging or interest notifications, facilitate direct and transparent engagement, reducing misunderstandings and improving overall user satisfaction [15][16].

Administrative oversight is essential to maintain platform integrity and prevent misuse. An optional admin panel enables monitoring of user registrations, document verification, and property listings. This layer of control ensures compliance with platform policies and enhances user confidence. Such governance mechanisms are crucial for building a sustainable and trustworthy digital rental ecosystem [17].

Considering these challenges and technological opportunities, this project proposes a secure, location-aware, and student-centric rental management system. By integrating mobile application development, cloud services, document verification, geolocation, and real-time communication, the system aims to modernize student accommodation management. The proposed solution not only simplifies the rental process but also promotes transparency, safety, and efficiency, making it highly suitable for large-scale academic environments [18].

II. PROBLEM STATEMENT

The process of finding suitable student accommodation remains inefficient, insecure, and unstructured due to the absence of a centralized and verified digital platform. Students relocating to new cities often rely on informal sources such as local agents, social media groups, or unverified online listings, which frequently provide inaccurate information regarding rent, location, amenities, and availability. This lack of transparency exposes students to fraudulent listings, unsafe living conditions, and financial exploitation, while property owners face difficulties in identifying genuine tenants. Furthermore, existing systems do not integrate essential features such as document verification, location-based search, nearby facility information, and real-time communication within a single platform. These limitations highlight the need for a secure, user-friendly, and technology-driven rental management system specifically designed to address the unique accommodation challenges faced by students.

III. OBJECTIVE

- To design and develop a secure and user-friendly mobile application that enables students to register, authenticate, and access rental accommodation services efficiently.
- To implement a reliable document verification mechanism that ensures only verified students and genuine property listings are available on the platform.
- To provide an intelligent, location-based rental search system that allows students to filter accommodations based on budget, preferences, and proximity to essential facilities.
- To facilitate transparent and efficient communication between students and property owners through interest-based interactions and real-time messaging features.
- To create a scalable and manageable system with administrative control for monitoring users, verifying listings, and maintaining platform trust and data integrity.

IV. LITERATURE SURVEY

Paper 1

Paper Title: Enhancing House Rental Management System through User-Centric Design and Technological Advancement

Authors: Ganesh Sanap, Dhruv Pandey, Ayush Khopatkar, Sagar Gaud, Dr. Rohini Patil

Year: 2025

Publication: International Research Journal of Engineering and Technology (IRJET)

Summary:

This paper presents an extensive study of modern house rental management systems with a focus on improving usability, efficiency, and tenant–landlord interaction. The authors analyze existing rental platforms and identify limitations such as poor user engagement, rigid interfaces, and lack of intelligent features. The study emphasizes the importance of user-centric design and highlights how traditional systems fail to adapt to diverse user requirements. Key functionalities such as property listings, authentication, communication modules, and security mechanisms are evaluated to understand their effectiveness in real-world applications.

In addition, the paper proposes technological enhancements including real-time analytics, AI-based rent prediction, and adaptive interfaces to improve system performance and user satisfaction. The research concludes

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that integrating emerging technologies like machine learning and modern web frameworks can significantly enhance rental platforms. The findings provide a strong foundation for developing scalable, intelligent, and student-friendly rental systems that ensure transparency, trust, and operational efficiency.

Paper 2

Paper Title: RENTEASE: A MERN Stack-Based Web Application for Rental Property Management

Authors: Mohd Anas Khan, Shaizan Abbas Rizvi, Ayush Mishra, Shailesh Chauhan, Ashwini Chaturvedi

Year: 2025

Publication: International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Summary:

This paper introduces RENTEASE, a comprehensive MERN stack-based web application designed to digitize and automate rental property management. The authors address key inefficiencies in traditional rental systems such as fragmented data handling, manual paperwork, and lack of direct communication between landlords and tenants. The proposed system integrates property listing, tenant discovery, lease agreement management, and rent tracking into a unified digital platform, thereby eliminating dependence on intermediaries.

Furthermore, the study emphasizes system scalability, security, and usability by leveraging MongoDB, Express.js, React.js, and Node.js. Advanced features such as role-based authentication, automated lease workflows, and AI-driven tenant matching are discussed. The paper demonstrates how full-stack web technologies can modernize rental ecosystems, enhance trust, and improve overall operational efficiency.

Paper 3

Paper Title: A MERN Stack-Based Platform on Enhanced Convenience for Real Estate Sector

Authors: Meghana Korikana, Kantamani Meghana, Gonti Harika, Prameela Lenka, Narendra Padala, Lokesh Konathala, P. N. Singh

Year: 2025

Publication: International Journal of Creative Research Thoughts (IJCRT)

Summary:

This research focuses on developing an intelligent real estate platform using the MERN stack combined with machine learning techniques. The system aims to enhance convenience for buyers, renters, and property owners by offering advanced search filters, personalized recommendations, and price prediction models. The authors highlight how traditional real estate platforms rely heavily on static listings and lack intelligent decision-support capabilities.

The study integrates regression-based machine learning models for property price prediction and comparison tools to assist users in informed decision-making. By incorporating Firebase authentication and modular architecture, the platform ensures secure access and scalability. The paper concludes that AI-powered, MERN-based systems represent a significant advancement over conventional rental platforms by offering personalized, data-driven, and interactive real estate solutions.

Paper 4

Paper Title: A Smart MERN Stack Platform for Efficient Student Accommodation and Rental Management

Authors: Arvind Nair, Aryan Sadvelkar, Sarvesh Damle, Prof. Neha Kudu

Year: 2024

Publication: International Journal for Multidisciplinary Research (IJFMR)

Summary:

This paper specifically addresses the challenges faced by students in finding suitable accommodation near educational institutions. The authors propose a MERN-based rental system tailored exclusively for students, enabling them to search for apartments, hostels, and shared accommodations based on budget, location, and proximity to colleges. The system reduces dependency on brokers and minimizes the uncertainty associated with landlord preferences toward students.

Additionally, the platform promotes peer-to-peer assistance by allowing graduating students to share accommodation details with incoming students. Features such as filtering options, nearby facility information, and admin-based verification enhance trust and usability. The study highlights the importance of student-focused rental platforms and demonstrates how technology can simplify housing searches while saving time and cost for students and their families.

Paper 5

Paper Title: Revolutionizing Property Management: e-Perumahan Web-Based Housing Management System

Authors: Wisnu Uriawan, Mochamad Najib Budi Noorsyahbannie, Indah Sri Lestari, Muhammad Alwy Solehudin, Ine Enjelianto

Year: 2023

Publication: Preprints.org (Web-Based Housing Management System)

Summary:

This paper presents a web-based housing management system designed to replace manual administrative processes in residential communities. The authors identify major challenges such as inefficient data handling, lack of transparency in fee management, and time-consuming manual reporting. The proposed e-Perumahan system utilizes

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PHP and MySQL and follows the Agile Scrum methodology to ensure flexibility and user adaptability.

The system enables administrators to manage resident data, billing, payments, and financial reports digitally, while residents can upload payment proofs and access transaction records. Although the system is focused on residential governance rather than rentals, it highlights the importance of digital transformation in housing management. The study reinforces the need for secure, scalable, and user-friendly platforms in modern property management systems.

V. MATHEMATICAL MODEL

A. System Description

The proposed student accommodation rental system is a secure, technology-driven platform designed to connect students and property owners through verified and location-based rental listings. The system integrates user authentication, document verification, rental listing management, location-based services, filtering mechanisms, and interaction modules to ensure transparency, safety, and efficiency. The mathematical model formally represents the behavior and structure of the system using sets, functions, and constraints.

B. System Representation

$$(1+x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \cdots$$

The system is mathematically represented as:

S = {U, P, L, F, D, A, R, O}

Where:

- **U** is the set of users (students and property owners)
$$U = \{u_1, u_2, u_3, \ldots, u_n\}$$
- **P** is the set of rental properties
$$P = \{p_1, p_2, p_3, \ldots, p_m\}$$
- **L** is the set of geographical locations
$$L = \{l_1, l_2, l_3, \ldots, l_k\}$$
- **F** is the set of filtering parameters
F = {budget, room_type, amenities, distance, availability}
- **D** is the set of verification documents uploaded by users
$$D = \{d_1, d_2, \ldots, d_n\}$$
- **A** represents administrative control operations
A = {user_verification, listing_approval, activity_monitoring}
- **R** is the set of rental interest requests
$$R = \{r_1, r_2, r_3, \ldots, r_x\}$$
- **O** is the system output
O = {verified_users, filtered_listings, nearby_facilities, notifications}

C. Input Parameters

The primary inputs to the system include:

- User registration details
- Verification documents
- Property listing information
- Location selection
- Search and filtering preferences
- Interest requests from students

These inputs are validated and processed through the system modules to generate reliable outputs.

D. Authentication and Verification Function

$$(x+a)^n = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k}$$

User authentication and document verification are represented by the function:

Auth(u, d) → {0, 1}

Where:

- Auth(u, d) = 1 if the user u uploads a valid document d
- Auth(u, d) = 0 if the document is invalid or unverified

Only users with Auth(u, d) = 1 are allowed to access rental listings and communication features.

E. Rental Listing and Filtering Function

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos\frac{n\pi x}{L} + b_n \sin\frac{n\pi x}{L} \right)$$

The rental filtering process is defined as:

Filter(P, F, L) → P′

Where:

- $P' \subseteq P$
- P′ contains only those properties that satisfy filtering criteria F and selected location L

This function ensures efficient and relevant accommodation search results.

F. Location-Based Facility Mapping

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Nearby facilities are determined using the function:

Facility(l) → {hospital, grocery_store, transport, ATM}

Where $l \in L$

This function provides contextual information to support informed decision-making.

G. Interaction and Interest Function

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots, \qquad -\infty < x < \infty$$

The interaction between students and property owners is modeled as:

Interest (u, p) → r

Where:

- u ∈ U is a verified student
- p ∈ P is an approved property
- r ∈ R represents an interest request

This function enables structured and secure communication.

H. Administrative Control Constraints

The system operates under the following constraints:

- Only verified users can access rental listings.

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- Only admin-approved properties are displayed.
- Communication is enabled only after interest confirmation.
- All user activities are monitored to maintain data integrity and platform security.

I. System Output

The final output of the system is represented as:

( )

Where the function *f* ensures:

- Secure access
- Accurate rental recommendations
- Verified interactions
- Improved student accommodation management

J. Conclusion of Mathematical Model

This mathematical model clearly defines the structure, functionality, and constraints of the proposed student accommodation rental system. It ensures logical consistency, system reliability, and scalability. The formal representation supports efficient implementation and future enhancement of the platform while maintaining security, transparency, and usability.

VI. PROPOSED SYSTEM

The proposed system is a secure, student-centric rental management platform designed to simplify and modernize the process of finding and managing student accommodations. The system integrates mobile and cloud-based technologies to provide verified access, intelligent search capabilities, and transparent communication between students and property owners. It ensures trust, efficiency, and ease of use while addressing the limitations of traditional accommodation search methods.

A. User Registration and Authentication

The system begins with a secure user registration and authentication mechanism. Students and property owners register using valid credentials through email and password-based authentication. To enhance security and prevent unauthorized access, identity verification is incorporated during the onboarding process. Students are required to upload valid documents such as college ID cards or institutional proof, which are securely stored in cloud storage. Only verified users are granted full access to the platform, ensuring a trusted and safe rental environment.

B. Document Verification and User Validation

A robust document verification module is implemented to establish authenticity and reliability within the system. Uploaded documents undergo verification either through administrative review or automated validation mechanisms. The verification status is maintained in the database and reflected in the user profile. This process minimizes fraudulent activity, protects both students and property owners, and promotes confidence while interacting on the platform. Verified users are distinctly marked, enabling transparent identification across the system.

C. Rental Room Listing and Management

The rental room listing module allows property owners to add, update, and manage accommodation details efficiently. Each listing includes essential information such as room type, rent amount, location, amenities, availability status, and images. Listings are organized systematically to enable smooth browsing and easy discovery. The system supports categorized listings, allowing students to explore accommodations that best match their academic and lifestyle needs. Administrative approval mechanisms further ensure that only genuine and appropriate listings are visible to users.

D. Location-Based Search and Nearby Facility Integration

To enhance decision-making, the proposed system integrates location-based services using digital maps and geolocation APIs. Students can search for accommodations based on preferred locations or proximity to educational institutions. The platform also displays nearby essential facilities such as hospitals, grocery stores, public transport, and ATMs. This contextual information helps students assess the convenience and suitability of the accommodation area, making the rental selection process more informed and efficient.

E. Communication, Interaction, and Administrative Control

The system provides a seamless communication mechanism that allows students to express interest in rental listings and interact directly with property owners through in-app messaging or contact requests. Notifications keep users informed about responses and listing updates. An administrative control panel enables monitoring of user activity, document verification, and listing approvals. This centralized oversight ensures system integrity, data security, and policy compliance, making the platform scalable, reliable, and suitable for large-scale student accommodation management.

VII. SYSTEM DESIGN

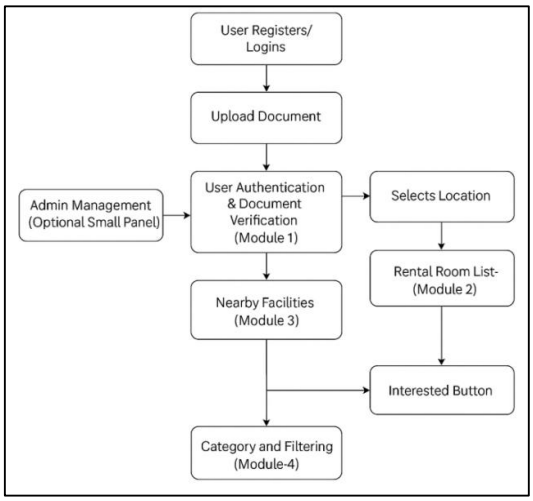

Fig.1 System Architecture

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User Registration / Login

The user registration and login block represents the entry point of the proposed system. In this phase, students and property owners create an account by providing basic details such as name, email ID, mobile number, and password. For returning users, the login mechanism allows access using previously registered credentials. This step ensures that all interactions within the system are associated with authenticated users, thereby preventing unauthorized access. Secure authentication protocols are applied to protect user credentials and maintain data confidentiality throughout the platform.

This block is essential for maintaining user identity and session management within the system. Once logged in, the system assigns a unique user profile that stores preferences, verification status, and activity history. By enforcing a login-based approach, the platform ensures accountability, personalized experiences, and controlled access to rental listings. This foundation enables further modules such as document verification, location-based search, and communication to function in a secure and structured manner.

Upload Document

After successful login or registration, users are prompted to upload verification documents. These documents typically include student ID cards, college admission letters, or other valid identity proofs that confirm the user's eligibility to access the platform. The document upload process is designed to be simple and user-friendly, allowing users to capture images or upload scanned copies directly through the application. Uploaded documents are securely stored in cloud storage to prevent data loss or unauthorized modification.

This step plays a crucial role in establishing trust within the system. By mandating document submission, the platform significantly reduces the risk of fake users, brokers, or fraudulent activities. It ensures that only genuine students and verified individuals can proceed further. The uploaded documents later undergo verification, which strengthens the credibility of the platform and provides property owners with confidence while interacting with prospective tenants.

User Authentication and Document Verification (Module 1)

This module serves as the core security and validation unit of the proposed system. It verifies user login credentials and evaluates the uploaded documents to confirm authenticity. The verification process can be automated or manually reviewed, depending on system configuration. Once verification is completed, the system updates the user's verification status in the database. Only verified users are allowed to access rental listings and other advanced features.

The importance of this module lies in its ability to create a trusted ecosystem. By validating both identity and documentation, the system prevents misuse and ensures safe interactions between students and property owners. This module acts as a gatekeeper, filtering out unverified users and maintaining platform integrity. As a result, it enhances transparency, improves safety, and builds long-term trust among all stakeholders involved in the rental process.

Admin Management (Optional Small Panel)

The admin management block represents an optional but critical supervisory layer in the system. Through this panel, administrators can review uploaded documents, approve or reject user verification requests, and monitor overall platform activity. The admin has the authority to control listings, handle complaints, and take action against suspicious users. This centralized control ensures that platform rules and policies are consistently enforced.

From a system reliability perspective, the admin panel acts as a safeguard mechanism. It helps resolve disputes, manage misuse, and maintain system quality over time. Although optional, this panel significantly enhances system credibility by introducing human oversight where automated processes may fall short. It also enables smooth scalability by allowing administrators to manage increasing user activity efficiently.

Selects Location

Once the user is verified, the next step involves selecting a preferred location. This block allows students to choose the area where they wish to search for accommodation, either by manual input or through location-based services. Location selection is a critical factor as it directly influences the relevance of rental results displayed to the user. It helps narrow down search results to specific regions close to colleges or universities.

This location-based approach improves user experience by eliminating irrelevant listings. By focusing on geographical preference, the system ensures efficient data retrieval and faster decision-making. It also supports future enhancements such as distance calculation, route mapping, and proximity-based recommendations, making the accommodation search process more accurate and student-centric.

Rental Room List (Module 2)

The rental room listing module displays available accommodations based on the selected location. Each listing contains comprehensive details including room type, rent amount, amenities, availability status, and images. This module serves as the primary interaction point for students to explore housing options. Listings are presented in a structured and organized manner to enhance readability and ease of comparison.

This module plays a vital role in simplifying the accommodation discovery process. By consolidating verified rental data into a single interface, it reduces dependency on brokers and unverified sources. The inclusion of detailed information ensures transparency and helps students evaluate

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options effectively. This module significantly reduces the time and effort required to find suitable housing.

Nearby Facilities (Module 3)

The nearby facilities module provides information about essential services surrounding the selected rental location. These facilities include hospitals, grocery stores, ATMs, public transport, and other daily necessities. By integrating location-based data, the system helps students understand the practicality and convenience of living in a particular area.

This module enhances decision-making beyond just rent and room features. Students can assess the livability of a location by considering access to essential services. This feature is especially beneficial for students relocating to unfamiliar cities, as it offers a holistic view of the surroundings. As a result, users can make more informed and confident accommodation choices.

Interested Button

The interested button allows students to express interest in a particular rental listing. When clicked, it notifies the property owner or records the student's interest in the system. This action simplifies communication initiation without immediately sharing personal contact details. It provides a structured way for students to indicate serious intent.

This mechanism improves privacy and efficiency in communication. Instead of random calls or messages, interactions are initiated only when mutual interest exists. It reduces unnecessary disturbances for property owners and ensures meaningful engagement. The interested button thus acts as a controlled communication trigger within the rental workflow.

Category and Filtering (Module 4)

The category and filtering module refines the rental search process by allowing users to apply filters such as rent range, room type, gender preference, amenities, and distance. Categorization ensures that listings are grouped logically, making navigation intuitive and efficient. This module significantly enhances usability by reducing information overload.

From a performance and user-experience standpoint, this module saves time and improves search accuracy. Instead of browsing through numerous irrelevant listings, students can focus only on options that match their preferences. This intelligent filtering capability increases user satisfaction and supports faster decision-making, making the system practical and highly user-friendly.

VIII. RESULT

The proposed HomeRental student accommodation system was successfully implemented as an Android-based application and tested using real-time data inputs. The system integrates secure authentication, administrative control, property listing, and user-friendly navigation. The results obtained from testing demonstrate that all major functional modules operate correctly and efficiently. The outcome of each module is explained sequentially with reference to the corresponding figures.

Fig. 2 HomeRental Application Splash Screen

Fig 2: Splash Screen

Fig. 2 shows the splash screen of the HomeRental application, which appears when the application is launched. This screen displays the application logo and name, confirming successful initialization of the system. During testing, the splash screen loaded without delay and smoothly redirected users to the login interface. This result indicates proper application startup behavior and stable UI rendering.

Fig. 3 User Login Screen

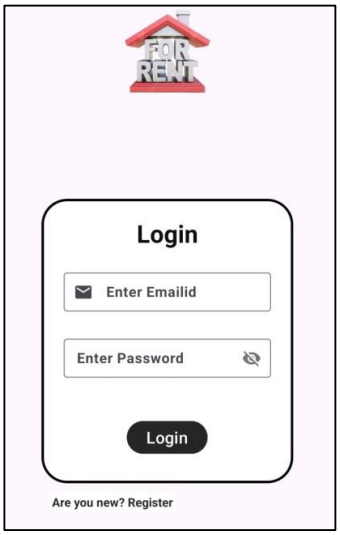

Fig 3: User Login Screen

Fig. 3 represents the user login interface of the system. Registered users can enter their email ID and password to access the application. Input validation ensures that incorrect or empty credentials are not accepted. Successful authentication redirects the user to the home dashboard. Testing confirmed that unauthorized users were restricted, validating the effectiveness of the authentication mechanism.

Fig. 4 Admin Login Screen

Fig. 4 illustrates the admin login interface, which provides secure access to administrative functionalities. The admin must enter a valid username and password to log in.

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Fig 4: Admin login

Only authorized credentials were accepted during testing, ensuring role-based access control. This result confirms that the system maintains separation between user-level and admin-level operations.

Fig. 5 Add Hostel Details Screen

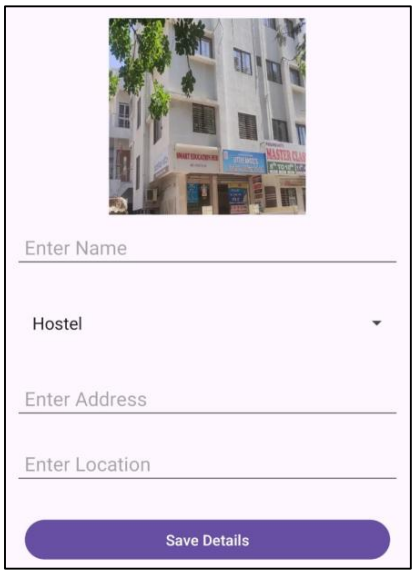

Fig 5: Hostel Details Screen

Fig. 5 shows the screen used for adding hostel or rental property details. The interface allows entry of hostel name, property type, address, and location, along with image upload functionality. When valid data is entered and the "Save Details" button is clicked, the information is successfully stored in the database. Testing verified that incomplete or invalid entries were restricted, ensuring data consistency and reliability.

Fig. 6 Home Dashboard with Category Selection

Fig. 6 represents the user home dashboard displayed after successful login. It provides category options such as Hostels and PG Rooms, enabling users to choose the type of accommodation they want to explore.

Fig 6: Home Dashboard

The dashboard loaded efficiently and responded correctly to user selections. This result confirms smooth navigation and an intuitive user interface design.

Fig. 7 Hostel Listing Screen

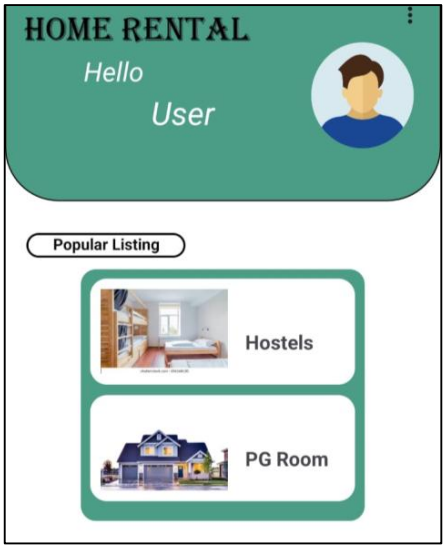

Fig 7: Hostel Listing Screen

Fig. 7 displays the hostel listing screen, where available accommodations are presented with details such as rent amount, hostel name, address, and contact number. Listings are shown in a structured format for easy comparison. The search functionality allowed users to quickly locate specific hostels. During testing, only stored and verified listings were displayed, confirming correct database integration and retrieval.

Overall Result Discussion

The system performed successfully across all tested modules, including application launch, user and admin authentication, hostel data entry, category-based navigation,

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and rental listing display. Each functional component worked as intended without runtime errors. The results confirm that the proposed HomeRental system provides a secure, reliable, and user-friendly solution for managing student accommodation. The application effectively reduces dependency on unverified sources and enhances transparency, making it suitable for real-world deployment and future enhancement.

IX. CONCLUSION

The proposed student accommodation rental system successfully addresses the major challenges associated with traditional methods of finding student housing. By introducing a secure and centralized digital platform, the system eliminates the dependency on unverified sources, brokers, and fragmented communication channels. The integration of user authentication and document verification ensures that only genuine students and property owners can access the platform, thereby enhancing trust, safety, and transparency. This structured approach significantly reduces the risks of fraud and misinformation commonly faced by students relocating to new cities.

The system's location-based rental search, detailed room listings, and advanced filtering mechanisms greatly improve the efficiency of the accommodation discovery process. Features such as nearby facility integration enable users to make informed decisions by evaluating not only the rental property but also the surrounding environment. The inclusion of an interest-based interaction mechanism simplifies communication between students and property owners while maintaining privacy and reducing unnecessary interactions. Together, these functionalities provide a seamless, user-friendly, and student-centric rental experience.

Overall, the developed system demonstrates strong potential as a scalable and practical solution for student accommodation management. Its modular design allows for easy maintenance and future enhancements, making it adaptable to growing user demands. By leveraging modern mobile and cloud technologies, the platform offers a reliable foundation for large-scale deployment across educational institutions and urban regions. The project successfully meets its objectives and contributes to the digital transformation of student housing services by offering a secure, efficient, and transparent rental management solution.

X. FUTURE SCOPE

The proposed student accommodation rental system offers significant potential for further enhancement and expansion. In the future, advanced technologies such as artificial intelligence and machine learning can be integrated to provide personalized accommodation recommendations based on user preferences, search history, and behavior patterns. Predictive analytics can also be used to estimate rental price trends, helping students identify cost-effective options and assisting property owners in setting competitive rental rates. Such intelligent features would further improve decision-making and user engagement on the platform.

Another important future enhancement is the integration of secure digital payment and booking mechanisms. By incorporating online rent payment gateways, booking confirmations, and digital lease agreements, the platform can evolve into a complete end-to-end rental management solution. Additional security features such as two-factor authentication and encrypted document handling can further strengthen data protection. Expanding the administrative dashboard with analytics and reporting tools would also help monitor system usage and improve operational efficiency.

The system can also be scaled to support cross-platform access and broader user communities. Future versions may include support for iOS devices, web-based portals, and multilingual interfaces to reach a wider audience. Integration with smart city infrastructure, public transport data, and campus information systems can further enhance location intelligence. With continuous improvements and scalability, the proposed system has the potential to become a comprehensive digital ecosystem for student accommodation management at institutional, regional, and national levels.

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