IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

A Research on Smart Residential Services

Shrikrushna Kharat[1], Shubham Dhanawade[2], Vaibhav Gond[3], Akshay Madane[4], Tushar Misal[5], Prof. Sachin Pandhare[6]

UG Student, Department of Computer Science & Engineering, SMSMP Institute of Technology and Research, Shankarnagar-Akluj, India[1,2,3,4,5]

Assistant Professor, Computer Science & Engineering, SMSMP Institute of Technology and Research, Shankarnagar-Akluj, India[6]

Abstract: This paper presents the design and development of an intelligent resaidential service management system titled "Smart Residential Services." The system offers an organized and efficient way for residents of apartments or societies to access essential maintenance services such as plumbing, electrical, housekeeping, and more. Traditional methods of requesting maintenance services often face issues of inefficiency, delayed responses, and lack of real-time status updates. To overcome these limitations, the proposed solution integrates modern web technologies for real-time service booking, worker status tracking (busy/free), and streamlined communication among residents, workers, and administrators. The platform offers a user-friendly web-based application with distinct logins for admins, workers, and residents, enhancing the overall residential experience. Through automation and digitalization, Smart Residential Services aim to simplify service requests and improve the quality of life in apartment communities

Keywords: Residential Service Management, Worker Status Tracking, Web-based Application, Flask, Python, MySQL Database

I. INTRODUCTION

In contemporary urban environments, the need for efficient residential service management has grown significantly. Traditional systems for handling essential services in apartment complexes, such as plumbing, electrical work, or general maintenance, often suffer from inefficiencies, lack of transparency, and delays in communication. This necessitates a shift towards a centralized, technology-driven solution that can address these challenges. The Smart Residential Services platform is designed to revolutionize apartment service management by offering a streamlined and user-centric approach. It integrates advanced web technologies to create a cohesive system where residents, workers, and administrators can interact seamlessly. Residents can register, log in, and request services, while workers can manage tasks and update their availability status in real time. Administrators oversee the system, ensuring data integrity and efficient operations. Managing essential services in apartment complexes, such as plumbing and electrical repairs, often involves inefficiencies and delays. The Smart Residential Services platform addresses these issues by offering a centralized, web-based solution that connects residents, service providers, and administrators.

II. OBJECTIVES

The primary objective of the Smart Residential Services system is to streamline the service management process for residential communities by providing a centralized, digital platform for residents, workers, and administrators. The system aims to offer real-time service booking, efficient worker assignment based on availability, and quick resolution of maintenance requests. By enabling role-based logins and tracking worker statuses as 'free' or 'busy,' the platform ensures transparency and reduces the response time for service delivery. Additionally, it seeks to enhance the living experience of residents by simplifying service access, improving communication, minimizing manual intervention, and optimizing resource allocation within the community. The project ultimately aspires to create a smart, organized, and efficient residential environment through the use of modern web technologies.

III. METHODOLOGY

The development of the Smart Residential Services platform follows a systematic methodology to ensure efficiency, scalability, and user satisfaction. The process begins with requirement analysis, where stakeholders, including residents, workers, and administrators, are identified, and their needs are gathered through surveys and interviews. A robust system architecture is designed, incorporating a role-based access control mechanism to segregate functionalities for admins,

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

residents, and workers. the system is monitored for performance, and user feedback is incorporated for continuous improvement and scalability.
Resident Login: Book services, track request status.
Worker Login: View assigned jobs, update job status.
Admin Login: Manage residents, workers, services, and analytics. Real-Time Status Updates: Workers can set status (Free/Busy).

IV. DETAILS RELATED TO PROPOSED SYSTEM

i. Architecture Diagram

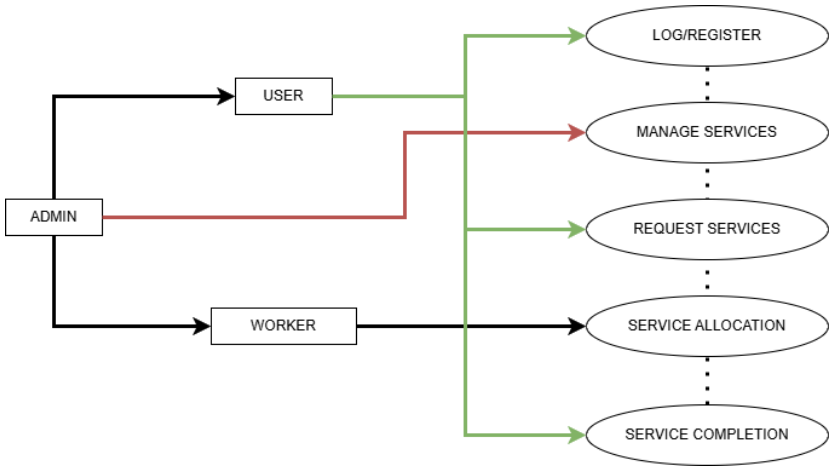

Fig. Architectural Diagram

The diagram Figure illustrates the workflow of the Smart Residential Services platform, showing the interactions between Users, Admins, and Workers, along with key system operations. Users, or residents, begin by logging in or registering to access the platform. Once logged in, they can manage services, such as viewing or updating their service requests. They can also submit new requests for services like plumbing or electrical work, etc. Admins oversee the entire system, handling tasks such as managing users, services, and worker assignments. When a user submits a service request, the admin allocates the task to an available worker, who updates the status of the service. Workers complete the requested services and mark them as finished in the system. The flow of actions is depicted with green arrows indicating user actions, while red arrows represent admin-level operations. This structure ensures that service requests are efficiently handled, tracked, and completed within the platform.

ii. User Activity Diagram

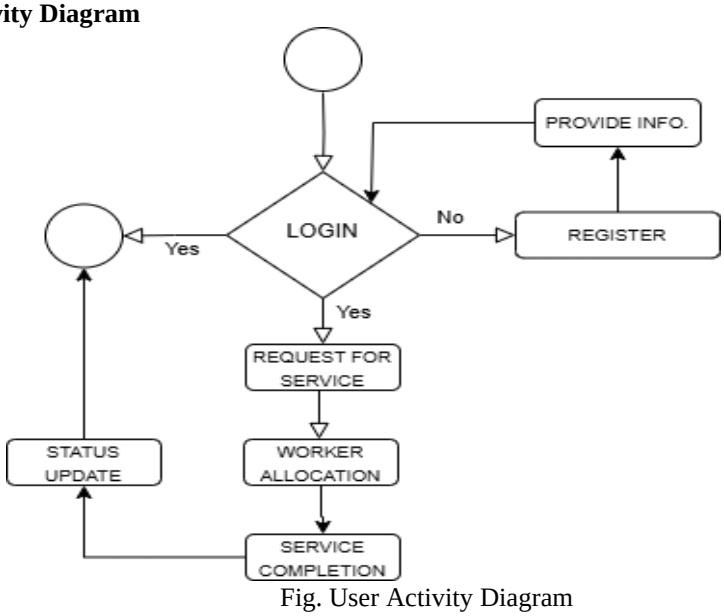

Fig. User Activity Diagram

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

The Figure shows User Activity In this user can log in or register to web-app, then according to their need they can apply for any service they need (like plumbing, electrician, etc) and worker will allocate to respected user. After service completion worker updates the status of the request made by user to fully complete the service, user can review the worker based on their work and satisfaction about their request.

iii. Worker Activity Diagram

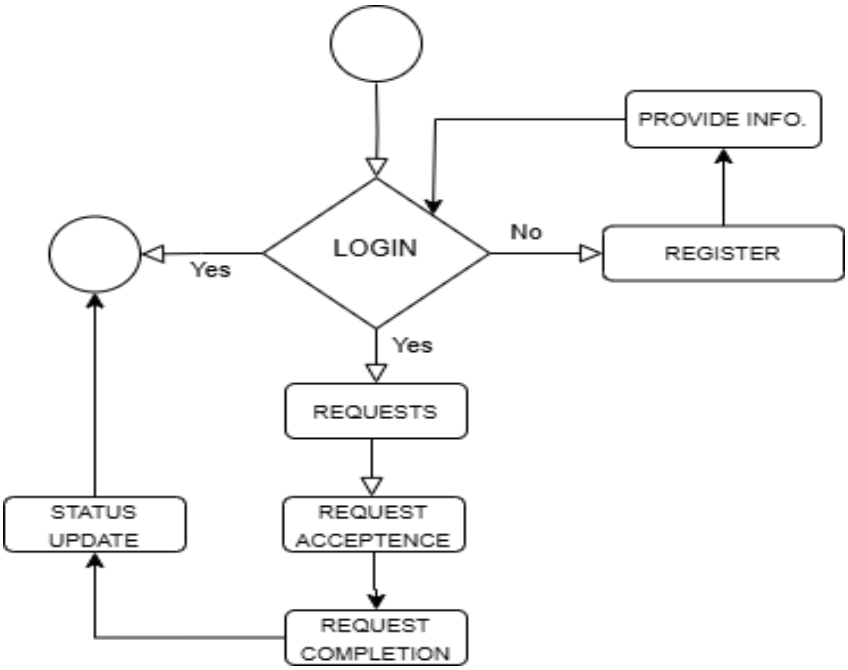

Fig. Worker Activity Diagram

The Figure is worker activity diagram shows the work flow about worker dashboard. Worker is log in or register to the web-app and receives requests based on worker profession, then worker can choses any request from the list and conform the request. After request acceptance worker complete the request and update the status.

iv. Workflow Explanation

User Register: The Fig. User Activity Diagram shows User Activity In this user can log in or if user is new so he will register from their title like worker or house holder and phone number and other details to webapp, then admin will verify user and worker and house holders they will be able to see various services available for their apartments.
Request Service: After a house holder logged in then according to their need they can apply for any service they need (like plumbing, electrician, etc) and worker will also log in to their module.
Allocation of Worker: After worker login and see how many requests they received by house holders according to their services (like plumber, electrician, etc) and worker will be accept the request then the worker will assign to the request of a house holder for work.
Service Completion: After service allocation worker will complete the work and update the status after that admin will have to verify the service is completed or not.
Status Update: After service completion worker updates the status of the request made by user to fully complete the service, user can review the worker based on their work and satisfaction about their request.

V. EXISTING SYSTEM

In an era where convenience and efficiency are paramount, the demand for reliable home maintenance services has significantly increased. Homeowners often encounter urgent issues that require immediate attention, such as plumbing leaks, electrical failures, and other repair needs. However, finding qualified professionals can be a daunting task, often leading to frustration and delays. Earlier, maintenance complaints were recorded through manual registers or phone calls at the apartment security desk. No real-time tracking of service requests. Residents faced delays without visibility into worker availability. Management teams had to manually allocate tasks and follow-up on job status.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

Modern societies require faster, more reliable service systems. Manual processes are now being replaced with digital portals or apps to reduce errors, enhance transparency, and improve resident satisfaction.

VI. RESULT AND DISCUSSION

i. Home Page

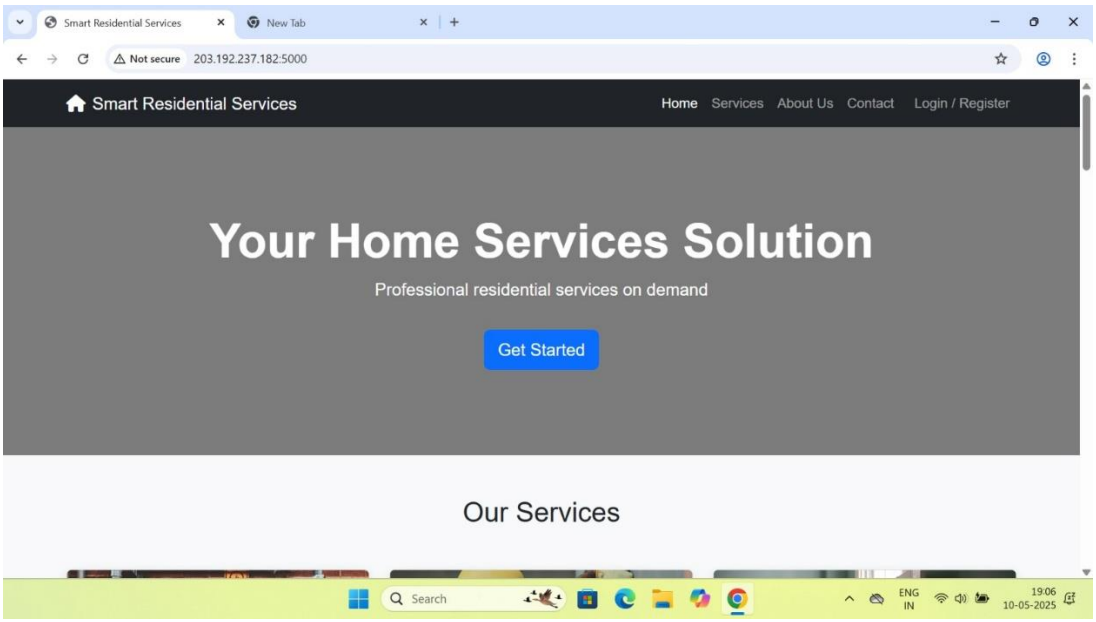

Fig. Home Page

ii. Login Page

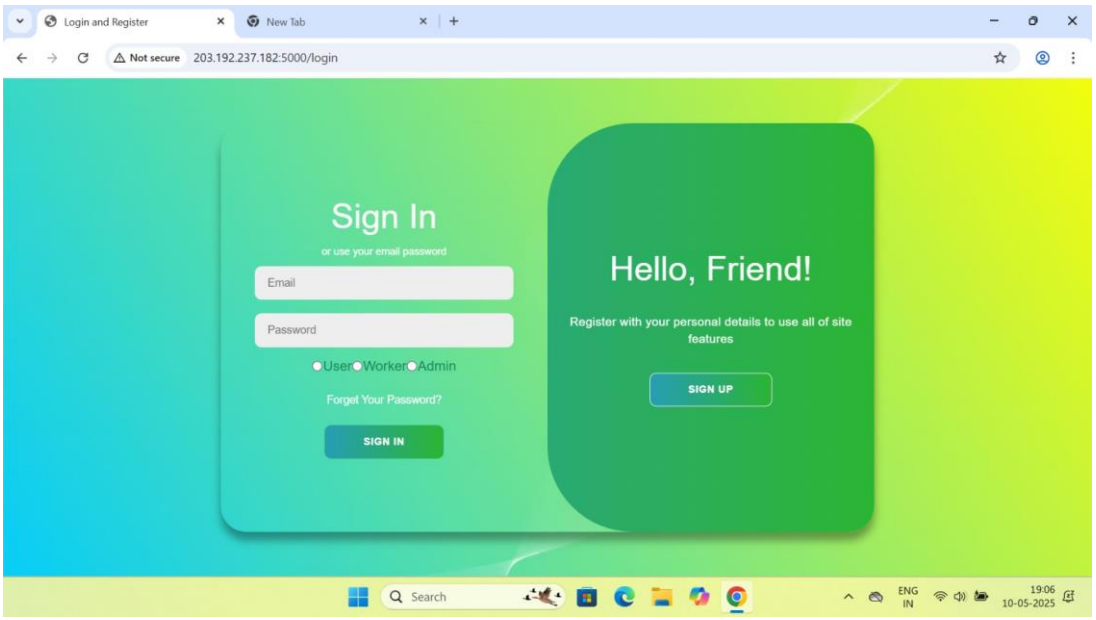

Fig. Login Page

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

iii. Services page

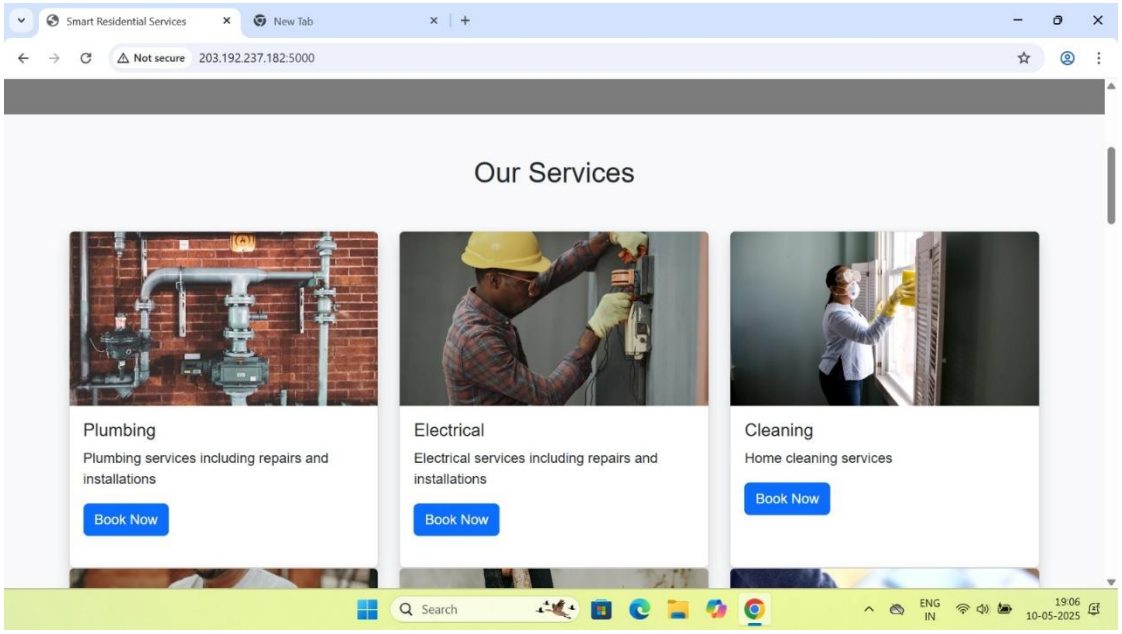

Fig. Services Page

iv. Admin Dashboard

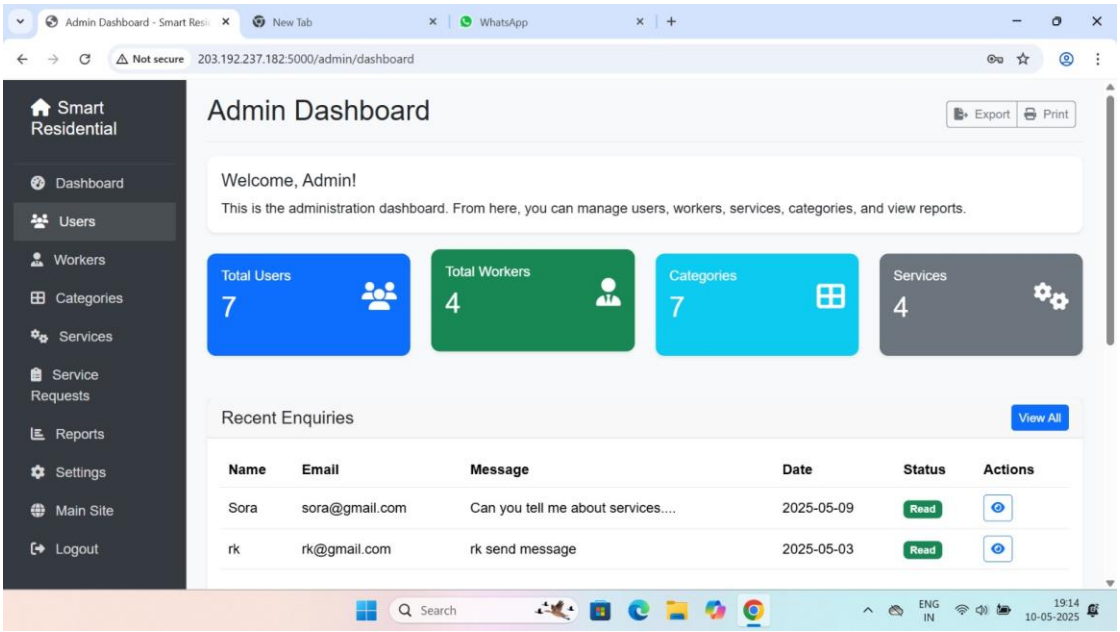

Fig. Admin Dashboard

VII. CONCLUSION

This Services platform provides an innovative and efficient solution to managing services within residential complexes. The system's ability to handle service requests, track worker availability in real-time, and automate service allocation significantly enhances the overall management process. Furthermore, the platform's modular design allows for easy scalability and future integration of new features, such as IoT-based monitoring or advanced data analytics. This project not only addresses the operational inefficiencies in traditional apartment service management but also improves the user experience by providing a digital, centralized solution that can be accessed easily by all stakeholders. Smart Residential

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 12, Issue 5, May 2025

DOI: 10.17148/IARJSET.2025.125262

Services offers a practical, scalable, and user-friendly system that can transform the way residential service management is handled in urban living environments.

REFERENCES

[1] Adukathil Arjun, Agganuru Saiprasad, Parui Priydarshan, Chakraborty Shriyansh, and Prof. Sangeetha Selvan, "SURVEY PAPER ON HOUSING SOCIETY MANAGEMENT SYSTEM" IRJET Mar 2021.

[2] Hongyun Kuang, Jie Yang, "Empirical Analysis on Hotel Online Booking Consumer's Satisfaction with E-service of Website", IEEE 2021.

[3] Nikita Dethe, Anagha Dhande, Shubham Gavali, Prof. Sonal Chaudhari, " E-Housing Society", IRJET May 2020.

[4] Pavan Kalaskar, Nikhil Khartode, Omkar Mote, Amol Marathe, Shailesh Hule, "Application for House Maintenance Service," IRJET Jan 2021.

[5] Apeksha Adekar, Aakash Dalvi, Pratik Gharat, Pushti Ratanghayra, " Household Veritas - A platform that provides household services " , IRJET Mar 2023

[6] Prachi Pakhale,Shweta Shirke, Swsati Dhake, "Online Housing Society Management System", International Journal for Research in Applied Science and Engineering Technology (IJRASET),March 2016.

[7] Y. Mounika, S. Tharun Kumar Reddy, S. Ravikiran, M. Reddy Vijay Kumar, D.Sowjanya, "Employee Task Management System with High Authentication", IRJET 2019.

