Customer Engagement Platform for Realty Firm

Dr. Y. Baby Kalpana
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
babykalpanay@siet.ac.in

Aravindha Vishnu C
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
aravindhavishnuc22cse@srishakthi.ac.in

Jeevanantha Krishnan T
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
jeevananthakrishnan22cse@srishakthi.ac.in

Deepakkumar S
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
deepakkumars22cse@srishakthi.ac.in

Dharnish R M
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
dharnishrm22cse@srishakthi.ac.in

Gayathri J T
Department of Computer Science
Sri Shakthi Institute of Engineering and Technology
Coimbatore, India
gayathrijt22cse@srishakthi.ac.in

Abstract — The real estate industry is rapidly adopting mathematical shift to enhance consumer knowledge and organize operations. The Customer Engagement Platform for Realty Firm is a brimming-stack netting application grown utilizing the MERN stack (MongoDB, Express.js, React.js, and Node.js) to bridge the ideas gap betwixt land firms and customers during the whole of their feature-purchasing journey. This platform determines a shared and user-friendly connect for consumers to investigate various country estate and suite projects, schedule site visits, create bookings, and endure post-reductions support. It also empowers administrators to control possessions listings, path consumer askings, and maintain date through embodied updates and announcements. Key modules contain client and admin authentication, project administration, engagement and enquiry pursuing, response scheme, and real-time ideas.

Keywords — response scheme, control possessions, country estate, path consuming, netting.

I. INTRODUCTION

In the modern real estate market, customer date plays a critical function in construction trust, driving marketing, and guaranteeing unending vindication. Traditional real estate practices frequently include disintegrated ideas and manual processes that can bring about customer discontent and incompetence. To overcome these challenges, electronics-compelled platforms have enhanced essential for joining land firms accompanying their clients in a seamless and shared approach. The Customer Engagement Platform for Realty Firm is created to transfer data from one computer system to another and simplify the feature investigation and client administration process. Using the MERN stack (MongoDB, Express.js, React.js, Node.js), this platform specifies a active and sensible surroundings for two together customers and administrators.

I. LITERATURE REVIEW

2.1 Ethan Brown's Web Development with Node and Express: Leveraging the JavaScript Stack (O'Reilly Media, 2019) is a comprehensive, hands-on guide that introduces developers to building modern, scalable, and efficient web applications using Node.js and the Express framework. The book covers essential concepts such as routing, middleware, templating with engines like Handlebars, form handling, file uploads, session and cookie management, authentication strategies, and security best practices. Brown also explores RESTful API design, integration with databases, error handling, performance optimization, and deployment techniques, all while emphasizing clean application architecture and practical, real-world examples. By combining fundamental principles with production-ready techniques, the book equips both beginners and experienced developers with the knowledge needed to create robust full-stack JavaScript applications using one of the most flexible and widely used server-side frameworks available today.

2.2 Tokenization—The Future of Real Estate Investment: The Journal of Portfolio Management (2021), provides an in-depth analysis of how blockchain-based tokenization is reshaping real estate investment models. Baum explains the concept of converting real estate assets into digital tokens, enabling fractional ownership, enhanced liquidity, and broader investor accessibility. He discusses the technological foundations, regulatory considerations, market opportunities, and potential risks associated with tokenized assets. The article also evaluates how tokenization can reduce transaction costs, increase transparency, and democratize global real estate markets while highlighting challenges such as investor protection, market volatility, and legal uncertainties.

2.3 Challenges and Considerations:

Implementing a customer engagement platform in a realty firm involves challenges such as integrating data from multiple systems, maintaining accurate and updated property and customer information, and ensuring personalized communication for diverse customer needs. The firm must also address data privacy, security, and regulatory compliance when handling sensitive information. Another key consideration is user adoption—agents and sales teams must be properly trained to use the platform effectively. Finally, the platform should support scalability, deliver consistent omnichannel communication, and offer measurable value to justify the investment.

2.4 Technological Features and Design Considerations:

A customer engagement platform for a realty firm built on the MERN stack combines React.js frontend (deployed on Netlify) and Node.js/Express.js backend (deployed on Render) with MongoDB as the data layer to provide a seamless, responsive, and secure user experience. The platform enables dynamic property search, lead management, real-time communication via Socket.io, and personalized recommendations, while dashboards offer insights for customers, agents, and admins. Key design considerations include role-based access, data privacy and security, performance optimization with caching and pagination, media handling via cloud storage, and omnichannel communication. These technological and design choices ensure a scalable, efficient, and user-friendly platform tailored for the real estate industry.
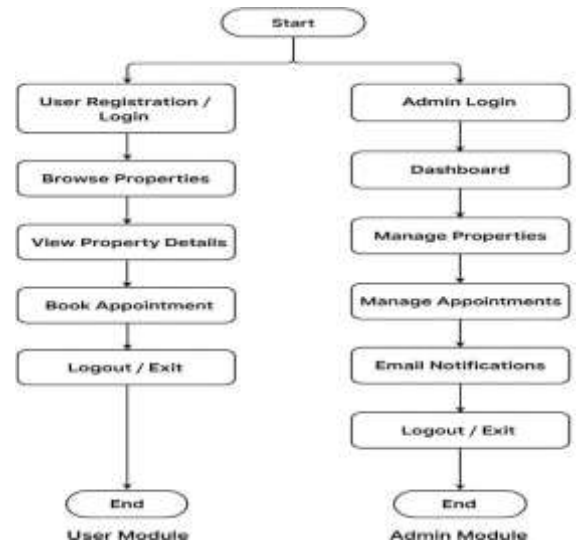
II.   EXSISTING SYSTEM

In the existing system, customers usually depend on agents or sales representatives to get details about available properties, pricing, and project updates. There is minimal real-time interaction or self-service capability for customers to explore and compare properties online. Moreover, there is no centralized database to manage customer information, booking records, or feedback systematically. From the firm's perspective, maintaining and tracking customer inquiries manually becomes time-consuming and error-prone. The lack of automation leads to poor follow-ups, data redundancy, and reduced operational efficiency. Additionally, without an online platform, firms struggle to analyze customer behavior, provide personalized recommendations, or keep customers engaged after the booking process.

III.   PROPOSED SYSTEM

The proposed system, Realty Engage, is an intelligent Customer Engagement Platform developed using the MERN stack (MongoDB, Express.js, React.js, Node.js) to enhance communication and engagement between real estate firms and customers. The platform serves as a unified digital hub that streamlines the customer journey — from property exploration to booking and post-sales support — with the assistance of an AI-powered chatbot for real-time interaction. This system offers distinct interfaces for Customers and Admins. Customers can browse villa projects, view detailed specifications, schedule visits.

IV.   FLOWCHART:

V.   EXPERIMENTAL SETUP

MODULE 1: REGISTER PAGE

It allows new users to create an account by entering basic details such as name, email, and password. The page includes input validation to ensure accurate and secure data entry. User credentials are securely stored in the database after successful registration
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Fig 1.1: Register Page

MODULE 2: LOGIN PAGE

It allows registered users to access the system using their email and password. The page validates user credentials to ensure secure authentication. Successful login redirects users to their respective dashboards.
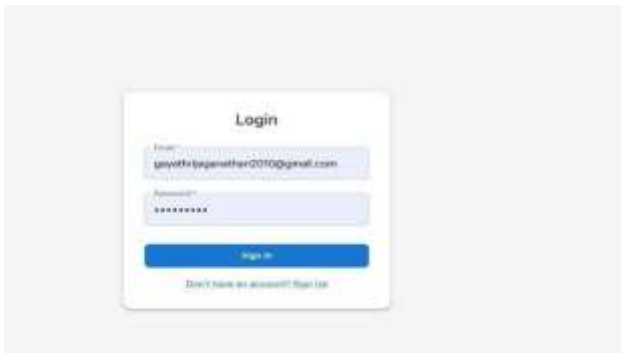
Fig 1.2: Login Page

MODULE 3: HOME PAGE AND DASHBOARD

This image illustrates how the image-generation agent is triggered by the orchestrator, receives structured inputs from other agents, processes the request, and produces a final AI-generated visual output that is returned to the user through the unified interface.
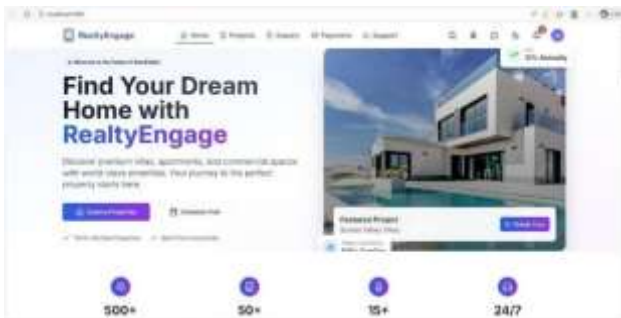

Fig 1.3: Home Page and Dashboard

MODULE 4: PPT TEMPLATE PAGE

This page provides an organized gallery of inbuilt presentation templates, allowing users to quickly browse and select layouts for creating visually appealing and professional presentations. The interface is clean and categorized, showing template collections grouped by style and purpose
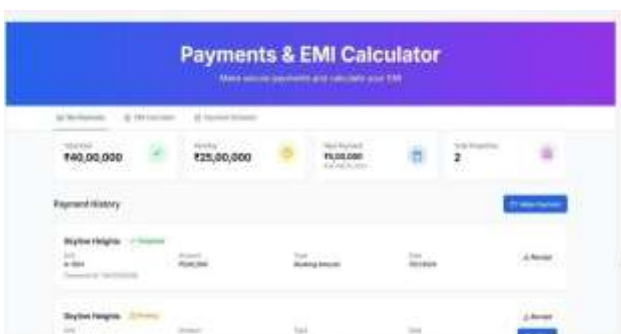

Fig 1.4: PPT Template Page

MODULE 3: PPT GENERATOR PAGE

This page provides an organized gallery of inbuilt presentation templates, allowing users to quickly browse and select layouts for creating visually appealing and professional presentations. The interface is clean and categorized, showing template collections grouped by style and purpose.
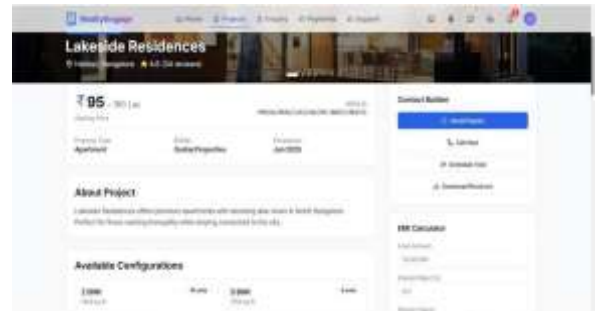

Fig 1.3: PPT Generator Page

VI.   CONCLUSION:

In conclusion, a robust customer engagement platform empowers a realty firm to build stronger relationships, streamline interactions, and deliver a personalized property-buying experience. By integrating real-time communication, automated follow-ups, targeted marketing, and data-driven insights, the platform enhances customer satisfaction and improves conversion rates. Ultimately, it helps the firm stay competitive, respond faster to customer needs, and create a seamless journey from inquiry to property purchase — ensuring long-term trust and loyalty.

VII.   REFERENCES

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