International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 10 Issue: 04 | April - 2026 SJIF Rating: 8.659 ISSN: 2582-3930

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

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

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

The real estate industry is experiencing a rapid shift toward digital transformation as organizations seek to enhance customer experiences and optimize internal operations. Traditional property-buying processes often involve multiple interactions, manual documentation, and limited visibility, which can create delays and confusion for both customers and developers. To address these emerging challenges, the Customer Engagement Platform for Realty Firm has been developed as a modern full-stack web application using the MERN stack. This platform bridges communication gaps between real estate firms and buyers by integrating advanced technologies such as 360° virtual tours and GIS-based property exploration. These immersive features enable customers 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.

II. LITERATURE REVIEW

2.1 The study by Alsawan and Alshurideh (2022) presents a **systematic review** focused on how **artificial intelligence (AI)** is being applied in real estate valuation. The authors examine a wide range of existing research, highlighting the evolution of valuation methods from traditional, manually driven appraisal techniques to advanced AI-powered models. Their review categorizes different AI methods used in property valuation, such as machine learning algorithms, neural networks, and data-driven predictive models. They also analyze how these techniques improve the accuracy, efficiency, and consistency of property value predictions when compared to conventional approaches.

2.2 Mehta and Baig (2018) analyze how CRM practices function in both organized and unorganized real estate sectors. They find that organized firms use structured processes and digital tools to manage customer data effectively. This leads to better communication, quicker service, and improved customer satisfaction. In contrast, unorganized firms rely on manual methods, resulting in inconsistent customer management. Accenture (2021) presents an industry-wide analysis of

customer engagement transformation initiatives. The report highlights that

organizations adopting integrated engagement platforms achieve superior operational efficiency, faster response times, and improved customer satisfaction.
The study emphasizes automation, analytics, and AI-driven insights as essential capabilities of modern engagement platforms.

2.3 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.

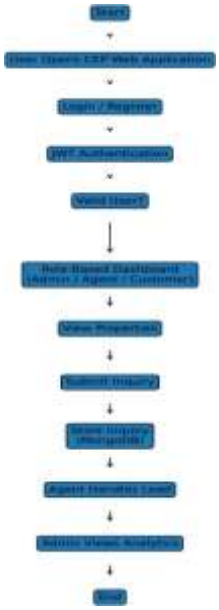
III. EXSISTING SYSTEM

The traditional Customer Engagement System used in many real estate organizations is a **single-layer, tool-based engagement model** that focuses primarily on basic customer communication and lead tracking. These systems operate as isolated solutions, where customer interactions, follow-ups, and sales activities are handled manually or through simple CRM tools without intelligent coordination or automation.
The existing system does not support intelligent decision-making, predictive engagement, or centralized orchestration of customer touchpoints. It relies heavily on human intervention, limiting its ability to scale, personalize interactions, or respond in real time to customer behavior.

IV. 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.

V. FLOWCHART:



VI. 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
.

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.

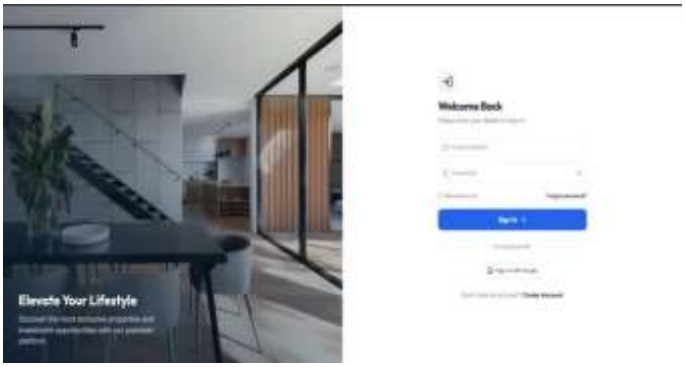


Fig 1.2: Login Page

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.

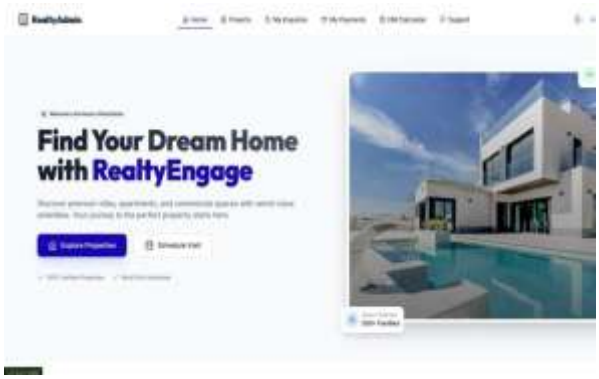


Fig 1.3: Home Page and Dashboard

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

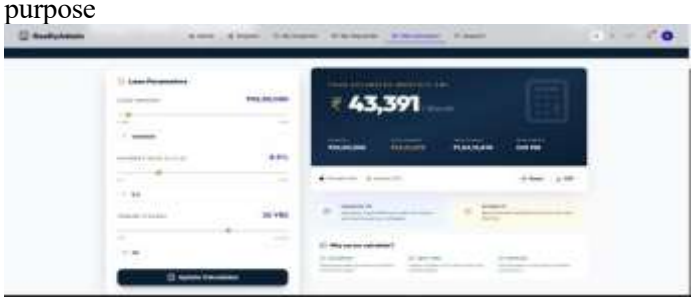


Fig 1.4: PPT Template Page

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

VII. 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.

VIII. REFERENCES

[1] Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, Ł., Polosukhin, I. (2017).

[2] Alsawan, N. M., and Alshurideh, M. T. (2022). The application of artificial intelligence in real estate valuation: a systematic review. In International Conference on Advanced Intelligent Systems and Informatics pp. 133- 149.

[3] Devlin, J., Chang, M. W., Lee, K., Toutanova, K. (2019). *BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding*. Proceedings of NAACL- HLT, pp. 4171–4186.

[4] Jurafsky, D., Martin, J. H. (2023). *Speech and Language Processing* (3rd ed.). Pearson Education.

[5] Aggarwal, C. C. (2018). *Machine Learning for Text*.
Springer International Publishing

[6] Mehta, A., & Baig, A., "Effectiveness of CRM in Organized and Unorganized Real Estate." *Journal of Emerging Technologies and Innovative Research (JETIR)*, vol. 5, no. 10, pp. 601–606, Oct. 2018.

[7] Goldenberg, B. J., *CRM in Real Time: Enabling Customer Strategies*. Information Today, Inc., 2008.

[8] Kotler, P., Keller, K. L. (2016). *Marketing Management*
(15th ed.). Pearson Education.

[9] Payne, A., Frow, P. (2005). *A Strategic Framework for Customer Relationship Management*.Journal of Marketing, Vol. 69, No. 4, pp. 167–176.

[10] Buttle, F., Maklan, S. (2019). *Customer Relationship Management: Concepts andTechnologies* (3rd ed.). Routledge.