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CHAT-BASED ORDER MANAGEMENT SYSTEM

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Abstract: Order Chat is a platform that transforms the order management experience for small businesses by providing a seamless, chat-based interface that streamlines operations. By eliminating the need to store customer contact information, the platform improves privacy, guaranteeing that customer data is not kept unnecessarily, thus preserving confidentiality. The user interface is designed to be intuitive and resembles common messaging applications, allowing business owners and employees to adapt quickly without requiring extensive training. With features facilitating effective order tracking and communication, Order Chat enables businesses to share chats, updates, and confirmations in real time. This makes it perfect for companies that rely heavily on communication, ensuring that orders are processed efficiently while prioritizing user experience and effectiveness.

1. INTRODUCTION

The chat-based order management platform is designed to optimize order processing by removing the necessity to store contacts. Drawing inspiration from Slack's effectiveness, it offers a user-friendly and smooth interface for placing and tracking orders. Tailored for small businesses, it fosters real-time communication, boosting efficiency and enhancing customer satisfaction. The project encompasses frontend (HTML, CSS, JavaScript), backend (React, Node.js), and database (MongoDB) integration, in addition to real-time chat capabilities. The report addresses system analysis, design, implementation, testing, outcomes, and potential future enhancements. This project advances technical skills in web development, security, and scalability, setting the stage for more innovative solutions. Its user-friendly design reduces the learning curve, enabling users to adapt quickly without needing extensive training. The incorporation of authentication and authorization systems boosts security, protecting user data and transactions. Additionally, the platform's scalability accommodates business expansion, effectively managing increasing order volumes. By optimizing order management and communication, the platform alleviates operational bottlenecks and streamlines workflow. Possible future enhancements could feature AI-driven chat support, multi-language capabilities, and sophisticated analytics, further improving usability, customer engagement, and decision-making for businesses of all sizes.

2. RESEARCH METHODOLOGY

The research methodology adopts a systematic approach to assess the efficiency of a chat-driven order management platform. It employs a mix of qualitative and quantitative techniques, including surveys and interviews with small business owners, staff, and customers to collect insights into user experiences and obstacles. Secondary research entails examining literature, case studies, and industry reports concerning chat-based systems. The search strategy incorporates keywords like "chat-based order management" and "real-time messaging for business," utilizing platforms such as Google Scholar, IEEE Xplore, and ResearchGate. Inclusion criteria emphasize studies published in the last decade, while outdated or irrelevant materials are omitted. Data analysis organizes findings to evaluate efficiency, response times, and customer satisfaction, employing statistical tools when relevant. Validation is performed through expert evaluations and real-world case studies, ensuring the findings are accurate and applicable. Ultimately, this research aims to yield valuable insights into refining order management with chat-based solutions.

Technology	Purpose	Primary Use	Alternative	Alternative Purpose	Primary Use
HTML	Markup Language	Structuring web content	XML	Markup Language for data representation	Structuring and storing data
CSS	Style Sheet Language	Styling and layout of web content	SASS/LESS	Advanced styling language with preprocessing capabilities	Enhanced styling with variables, mixins, and nested rules
JavaScript	Programming Language	Adding interactivity to web pages	TypeScript	Typed superset of JavaScript for large-scale applications	Adding interactivity with type safety and scalability
MongoDB	NoSQL Database	Storing and managing unstructured data	MySQL/PostgreSQL	Relational Database with structured data storage	Managing structured data with relationships and transactions

4. ALGORITHM FOR CHAT PROCESSING LOGIC

Step 1: Identifying the Sender
1. Check if the logged-in user is the sender or recipient.
2. If the logged-in user matches users[0]._id, return users[1].name.
3. Otherwise, return users[0].name.

Step 2: Displaying Messages Properly
1. Check if the message sender is the same as the previous one to determine text alignment and margin.
2. If the message is the last from a sender, show the avatar.
3. If multiple messages come from the same sender, reduce padding between them.

Step 3: Formatting Messages in the Chat Box
1. If the next message is from a different sender, adjust the margin for separation.
2. If it's the last message, ensure the sender's avatar is displayed

```
export const getSender = (loggedUser, users) => {
  //return console.log('id')
  //1on1 chatName
  return users[0]._id === loggedUser._id ? users[1].name : users[0].name;
};



export const getSenderFull = (loggedUser, users) => {
  //eye icon ProfileModal
  return users[0]._id === loggedUser._id ? users[1] : users[0];
};

//separating user's and sender's text in chatbox
export const isSameSenderMargin = (messages, m, i, userId) => {
  // console.log(i === messages.length - 1);

  if (
    i < messages.length - 1 &&
    messages[i + 1].sender._id === m.sender._id &&
    messages[i].sender._id !== userId
  )
    return 33;
```

```
  else if (
    (i < messages.length - 1 &&
      messages[i + 1].sender._id !== m.sender._id &&
      messages[i].sender._id !== userId) ||
    (i === messages.length - 1 && messages[i].sender._id !== userId)
  )
    return 0;
  else return "auto";
};


//padding between same user's/sender's texts
export const isSameUser = (messages, m, i) => {
  return i > 0 && messages[i - 1].sender._id === m.sender._id;
};


//displaying avatar on sender's last message
export const isSameSender = (messages, m, i, userId) => {
  return (
    i < messages.length - 1 &&
    (messages[i + 1].sender._id !== m.sender._id ||
      messages[i + 1].sender._id === undefined) &&
    messages[i].sender._id !== userId
  );
};
export const isLastMessage = (messages, i, userId) => {
  return (
    i === messages.length - 1 &&
    messages[messages.length - 1].sender._id !== userId &&
    messages[messages.length - 1].sender._id
  );
};
```

3. RESULTS AND DISCUSSION

The chat-based order management system enhances customer interactions by utilizing email addresses to access and continue discussions. This facilitates smooth order tracking without the need for customers to remember their order numbers. The user-friendly chat interface enhances the overall experience by allowing rapid responses, sharing of images/documents, and effective issue resolution. Companies gain from improved organization and decreased miscommunication. The chat-based order management platform efficiently streamlines business interactions through an organized workflow.

It starts with a homepage that leads to a community area where users can choose or add businesses. The login and registration pages provide secure access, guiding users to the chat section where they can communicate with the relevant individual via an email-based identification method.

Nevertheless, there are challenges like possible mistakes in email entry, which may result in misdirected messages. Security issues, such as unauthorized access, need to be tackled with robust authentication protocols. Future enhancements could feature auto-suggestions for email entry, message encryption, and a more customized user dashboard. Overall, the system effectively improves order management, providing a practical solution for small businesses.

Below is the landing page of web application, introducing the platform and its purpose.

Figure 1: Hero Page – Landing interface of the Chat-Based Order Management System.

Displays Business that the user wants to communicate or the user can add their business to the community
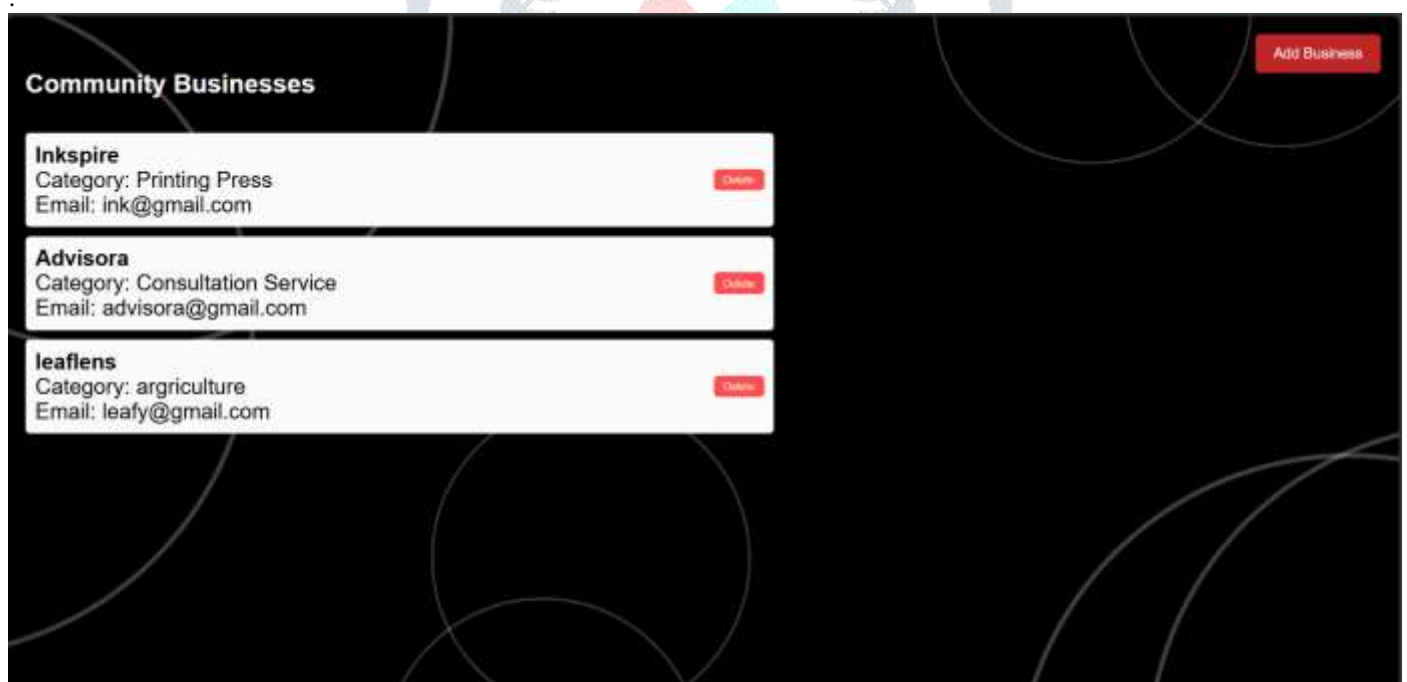.

Figure 2: Community Page – A collaborative space for users to interact and share information.

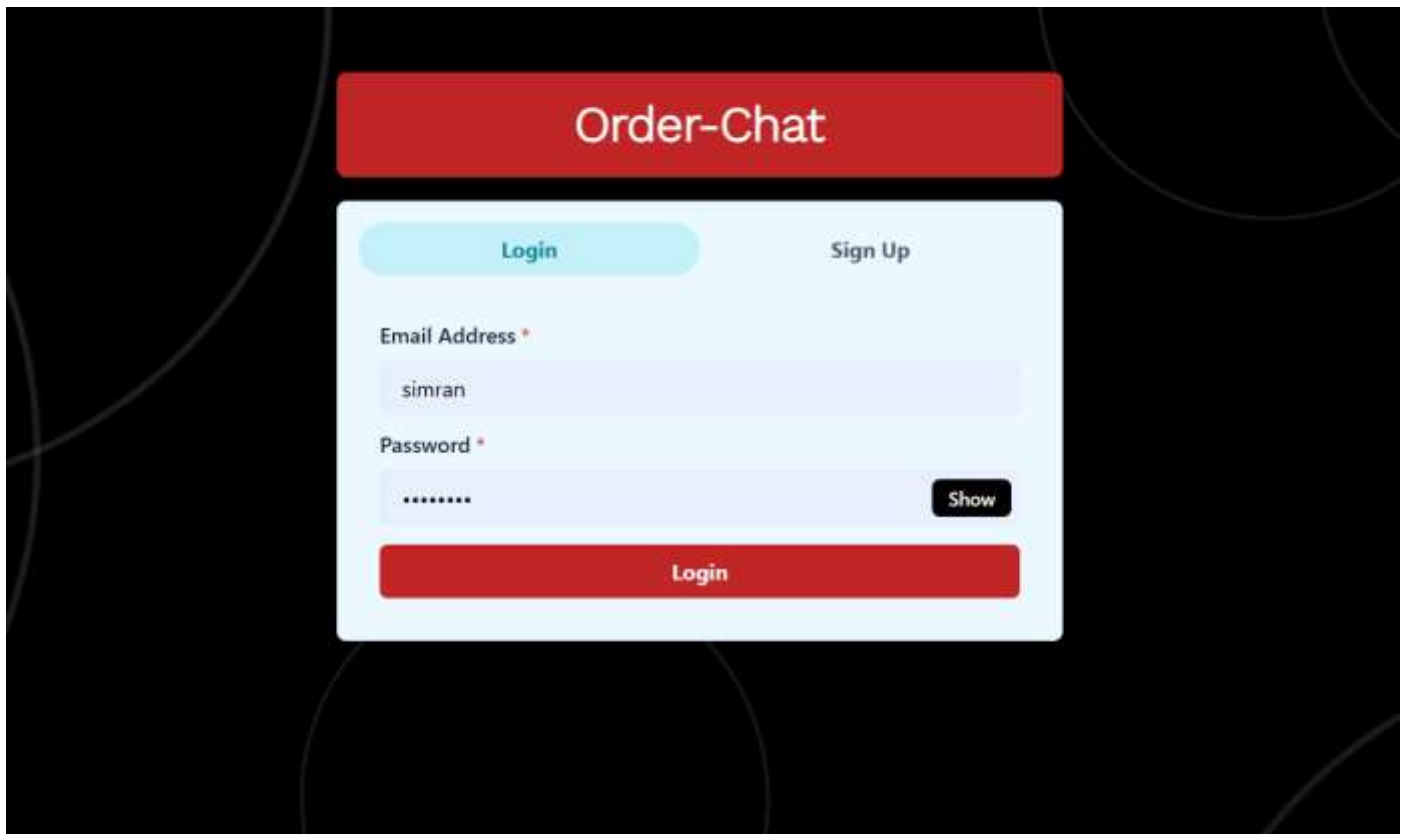The authentication interface is where users enter their credentials to access the system.

Figure 3: Login Page – User authentication for secure access.

The user searches for another user's ID using their name or email.
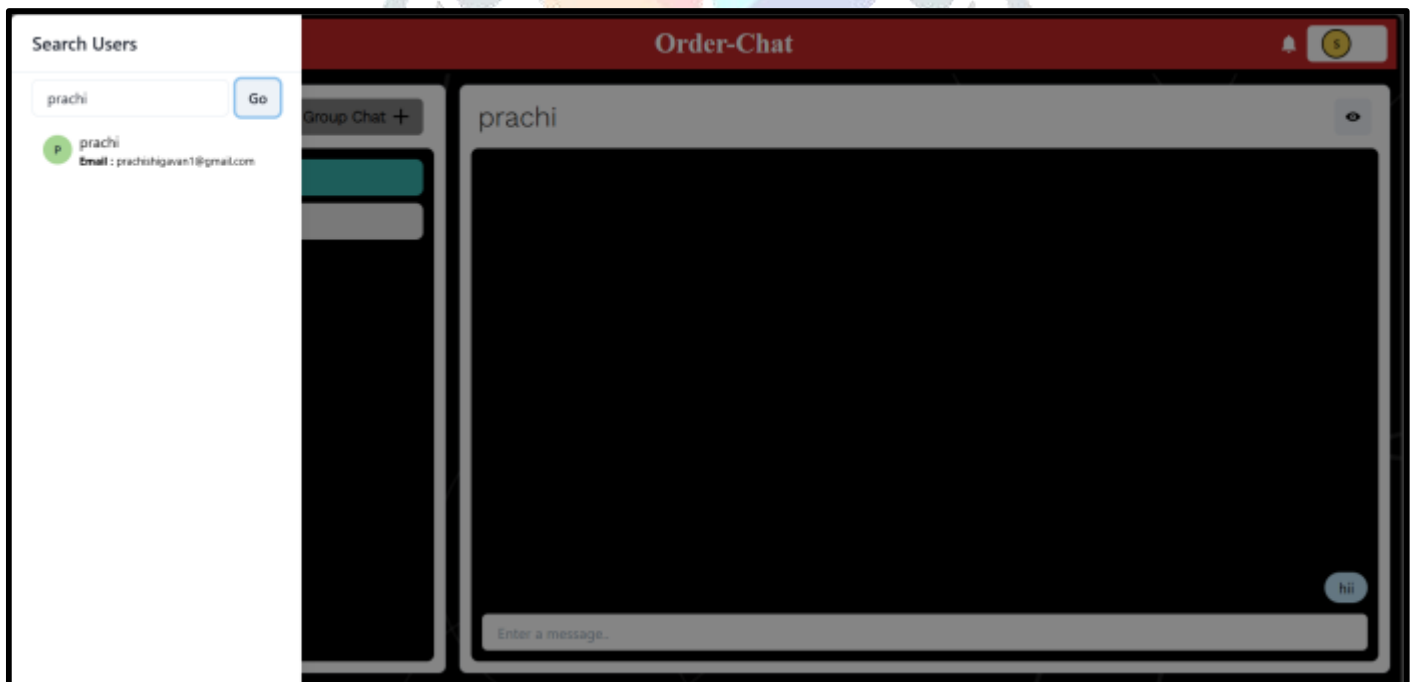
Figure 4: Main Chat Interface – Searching for Another user

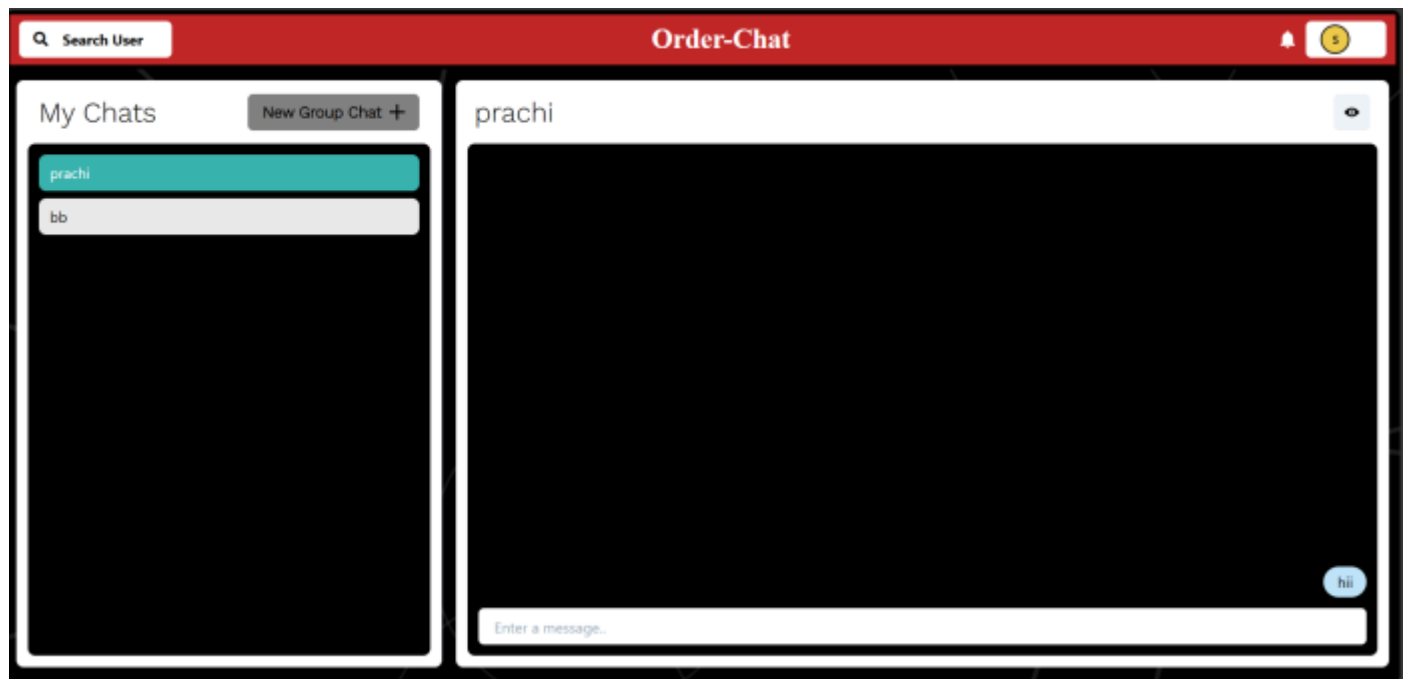The core section is where order management and interactions take place via chat.

Figure 5: Main Chat Interface – Real-time chat for managing and tracking orders.

4. CONCLUSION

The chat-based order management platform provides a user-friendly and effective way for small businesses to manage customer interactions. By adopting an email-focused system, users can easily search for and continue conversations without the need to remember order numbers. The structured workflow—from the homepage to community selection, login/signup, and the chat interface—ensures seamless navigation and improves the overall user experience. Testing indicated that the platform aids in order tracking, boosts communication, and reduces management errors. Furthermore, its real-time messaging and file-sharing features enable businesses to optimize their operations and respond to customer inquiries more promptly. While there are challenges like email input errors and security concerns, these can be addressed with functionalities such as email auto-suggestions, enhanced authentication, and encryption strategies for safeguarding data. In summary, the system successfully streamlines order management, making it a valuable tool for businesses seeking a simple and dependable communication resource to improve productivity and customer satisfaction.

5. ACKNOWLEDGEMENT

6. REFERENCES

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[2]. Customer Relationship Management (CRM) Systems and Their Impact on SMEs' Performance: A Systematic Review
Summary: This systematic review evaluates the impact of CRM systems on small and medium-sized enterprises (SMEs), focusing on operational improvements, sales growth, and customer retention.researchgate.net
Link: CRM Systems and Their Impact on SMEs' Performance

[3].Customer Relationship Management: Digital Transformation and Organizational Performance
Summary: This paper proposes a research model analyzing how CRM systems contribute to digital transformation and enhance organizational performance in small and medium enterprises.tandfonline.com
Link: Customer Relationship Management: Digital Transformation

[4]. Customer Relationship Management (CRM)
Summary: CRM refers to practices, strategies, and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle. Implementing CRM systems can enhance order management by streamlining processes and improving customer satisfaction.en.wikipedia.org
Link: Customer Relationship Management

[5].Consumer Relationship System (CRS)
Summary: A CRS is a specialized CRM software application used to handle a company's dealings with its customers, including sales, marketing, and support. Integrating CRS with chat-based interfaces can optimize order management and customer engagement.en.wikipedia.org
Link: Consumer Relationship System