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MAIL MANAGEMENT SYSTEM

Adarsh Biswal, 4th Year, Department of CSE, Gandhi Institute for Technology, BPUT, India
adarshbiswal2021@gift.edu.in
Prasmita Sahoo, 4th Year, Department of CSE, Gandhi Institute for Technology, BPUT, India
prasmita2021@gift.edu.in
Prof. Biswadarshi Biswal, Assistant Professor, Department of CSE, Gandhi Institute for Technology, BPUT, India

Abstract-
Modern organizations require efficient communication. Manual mail systems are inefficient, prone to errors, and lack transparency. This paper presents the Mail Management System, a web-based application designed to automate and streamline customer communication and internal support. Acting as a CRM-like tool, it centralizes and automates message handling via a ticketing system. Key features include a three-tier architecture (User, Staff, Admin), automated ticket assignment, chatbot integration, and reporting, enhancing efficiency, accuracy, and reliability in communication.

Keywords:
Mail Management, Communication System, Digital Transformation, Web Application, CRM, Ticketing System, Chatbot.

1. INTRODUCTION

The shift from manual to digital systems is crucial for effective organizational communication. Traditional methods for handling mail are slow and error-prone. The Mail Management System offers a digital solution to streamline internal mail via a secure, user-friendly interface. It automates mail delivery, tracking, and storage, reducing reliance on paper and supporting digital transformation. The system functions similarly to a CRM, improving the management of messages and support requests by offering a centralized, automated platform. It aims to overcome delays and miscommunication inherent in manual systems.

2. LITERATURE REVIEW

Effective organizational communication is often hindered by inefficient manual mail handling and unstructured digital methods like disparate emails. These approaches lead to delays, miscommunication, and lack of tracking, highlighting the need for automated solutions. Existing CRM and ticketing systems offer structured ways to manage interactions, focusing on centralizing and tracking communication. The integration of chatbots for instant support is also a growing area. This project is motivated by the need for a dedicated Mail Management System that addresses the specific challenges of internal mail flow by combining automated ticketing, role-based access, and chatbot integration into a unified digital platform.

3. SYSTEM DESIGN

3.1 Architecture (3-Tier Panel)

A 3-tier architecture ensures role-based access, security, and functionality separation. The **User Panel** is for customers to create and track tickets and interact with a chatbot. The **Staff Panel** is for employees to manage assigned tickets and respond to queries. The **Admin Panel** provides control over user management, ticket oversight, reports, and mass communication.

3.2 Functional Modules

Key modules include **Authentication & Authorization** for secure, role-based access; **Ticket Management** for creation, assignment, tracking, and status updates; **Chatbot Integration** for real-time support; and **Reporting & Analytics** for monitoring performance and identifying bottlenecks.

3.3 Database Design

The system uses a MySQL relational database. Main entities are Users (information and roles), Tickets (query details linked to users), and Messages (interaction logs). Tables include users, tickets, and messages.

4. TECHNOLOGY STACK

The system uses a modern stack with separate layers. The **Frontend** uses HTML for structure, CSS for styling, JavaScript for interactivity, and Bootstrap for responsive design. The **Backend** primarily uses PHP for processing requests and logic, with optional frameworks like Laravel or CodeIgniter. The **Database** is MySQL.

5. IMPLEMENTATION

5.1 User Panel Features:

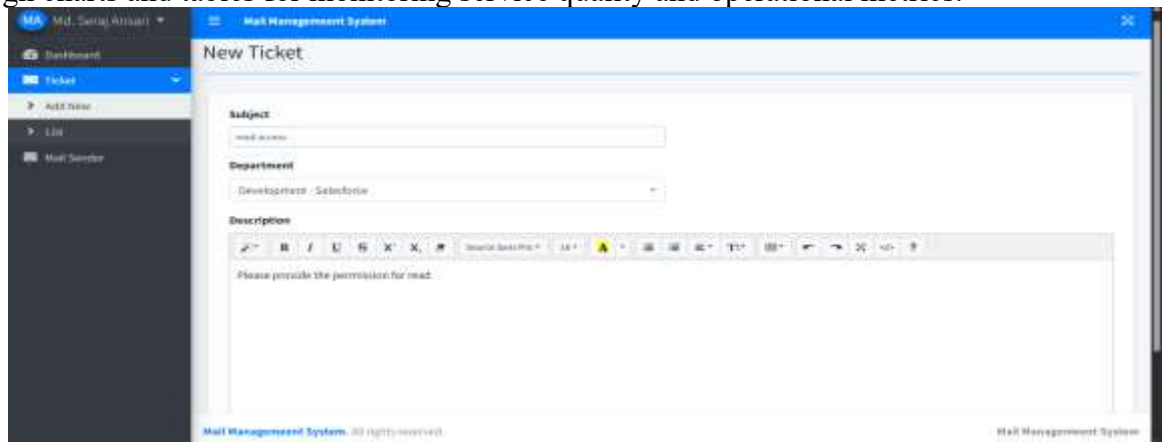
- **Secure Registration/Login:** Implemented a secure authentication system verifying credentials against stored encrypted data. Email verification ensures authenticity.
- **Ticket Creation:** Users can submit queries via a ticketing system, with each ticket assigned a unique ID and categorized by priority.
- **Ticket Tracking:** Users can view ticket status (Open, In Progress, Closed) and staff responses through their dashboard.
- **Chatbot Interaction:** A chatbot is integrated to provide 24/7 assistance, guiding users with common issues and basic troubleshooting, reducing initial response time.

5.2 Staff Panel Features:

- **View Assigned Tickets:** Staff members have access to a dashboard displaying tickets assigned to them, including user details and query subject for efficient workload management.
- **Update Ticket Status:** Staff can change ticket status (e.g., Open, In Progress, Closed), with time-stamped changes ensuring accountability.
- **Reply to Customers:** Staff can provide detailed responses to tickets, and the communication history is maintained in a thread format for easy reference.

5.3 Admin Panel Features:

- **Manage Users:** Administrators can access and manage all user records (add/delete staff, reset passwords, deactivate accounts).
- **Send Emails:** A feature is implemented for broadcasting updates, alerts, or promotions to specific user roles or the entire user base.
- **Analytics Dashboard:** Provides insights into ticket volumes, response times, and staff performance through charts and tables for monitoring service quality and operational metrics.



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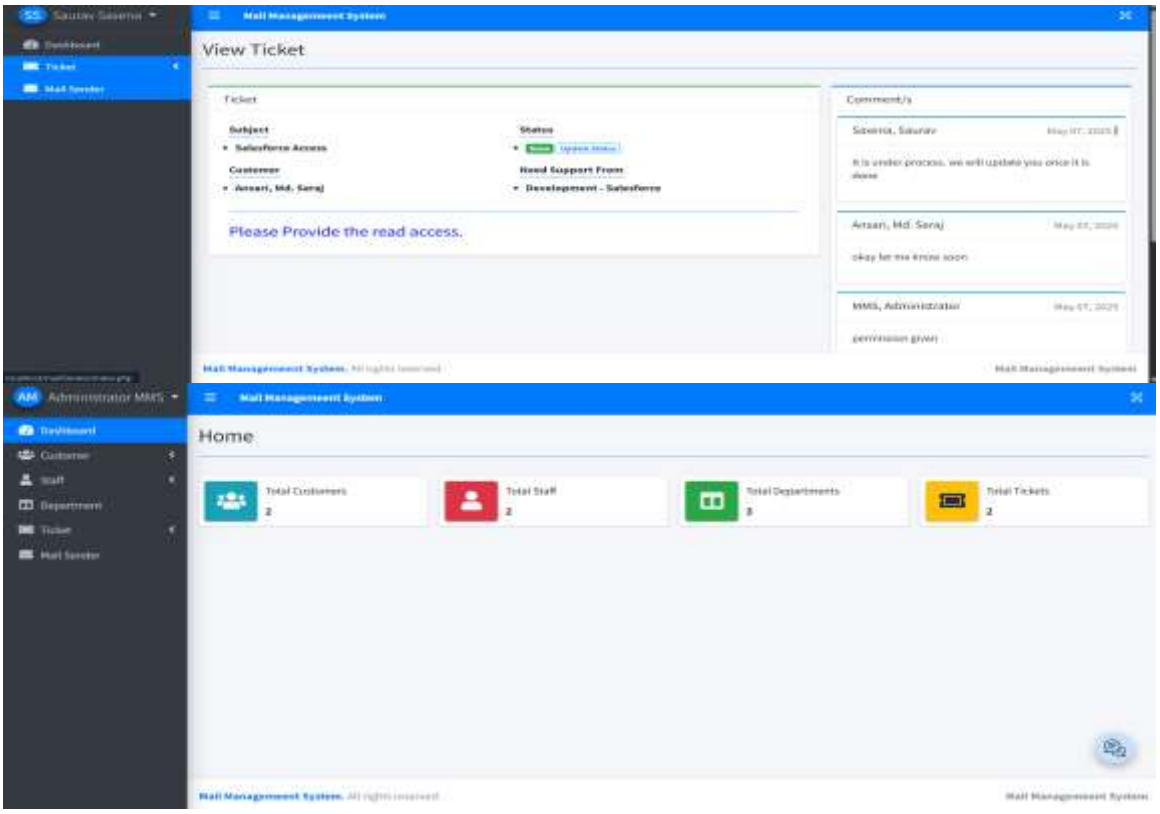

7. RESULTS AND DISCUSSION

The system significantly improved communication efficiency, reducing average response time from 24 hours to about 2 hours. This is due to automated assignments, chatbot integration, and categorized panels. User feedback was positive, with 85% customer satisfaction due to faster resolution, 24/7 chatbot availability, and a simple interface. Staff found the system intuitive, leading to better task management. The admin dashboard provided insights for improvement.

8. CONCLUSION AND FUTURE SCOPE

8.1 Conclusion

The Mail Management System successfully provides a CRM-like platform for managing customer communication, replacing manual processes with a structured, automated ticketing system. It offers tailored functionality across user tiers, leading to improved service quality and faster resolution times. The system provides a scalable foundation for customer relationship management.

8.2 Future Enhancement

Future enhancements could include mobile app integration, AI-based ticket prioritization, a searchable knowledge base, and multi-language support.

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REFERENCES

- https://www.php.net/manual/en/index.php
- https://getbootstrap.com/docs/5.3/getting-started/introduction/
- https://dev.mysql.com/doc/refman/8.4/en/security-guidelines.html