



ISSUE INSIGHT: COMPLAINT RESOLUTION AND RECOMMENDATION SYSTEM

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Abstract : Government hospitals play a pivotal role in ensuring the well-being and satisfaction of the citizens they serve. An essential aspect of delivering high-quality healthcare is the ability to address and resolve the concerns and complaints of patients and their relatives effectively. The Government Hospital Complaint Resolution and Recommendation System is a transformative digital platform designed to enhance the patient experience within government healthcare facilities. Government Hospital Complaint Resolution and Recommendation System offers a comprehensive and user-centric approach to managing grievances and improving healthcare services. This system is rooted in the principles of accountability, transparency, and data-driven decision making, all of which are crucial for the efficient functioning of government hospitals. The purpose of this system is to empower patients and their relatives to voice their concerns and register complaints regarding hospital services, while also ensuring that their feedback is not only heard but acted upon promptly. Beyond offering a platform for grievance registration, this system goes a step further by providing alternative solutions and recommendations based on historical data and predefined guidelines. It aims to bridge the gap between patient expectations and the delivery of healthcare services.

Keywords: Complaint Registration, Complaint Tracking, Recommendation Engine, Report Generation.

I. INTRODUCTION

In our society, government hospitals are critical in providing healthcare services to the public. However, there are often complaints and concerns raised by patients and their relatives about various aspects of these hospitals, including the quality of care, waiting times, staff behaviour, and more. These grievances need a systematic and efficient resolution process to ensure patient satisfaction and enhance the overall healthcare services. To tackle this challenge, we propose the creation of a Complaint Resolution and Recommendation System tailored for government hospitals. This system will allow patients and their relatives to easily report their complaints.

More importantly, it will go beyond just acknowledging complaints; it will also provide alternative solutions or recommendations to address the specific concerns raised and system will automatically generate monthly reports that detail the number of deaths and their causes. This data is essential for healthcare surveys and can guide the development of healthcare policies. Some key aspects of this system include maintaining patient confidentiality, ensuring real-time tracking of complaints, and establishing a feedback loop to follow up on resolved issues. It will also offer analytics tools to help healthcare administrators identify trends in complaints and mortality causes, allowing for proactive measures to be taken. By implementing this Complaint Resolution and Recommendation System, government hospitals can enhance the quality of their services, address patient concerns, and ensure a more efficient and patient-centric healthcare system. This not only leads to increased patient satisfaction but also provides valuable data for healthcare policy development and resource allocation.

II. OBJECTIVES

Complaint Registration: Develop an accessible platform for patients and their relatives to easily register complaints, ensuring a smooth on boarding process

Feedback Collection: Develop mechanisms for collecting feedback from patients regarding their experiences with hospital services, including clinical care, facilities, and staff interactions. This feedback will be used to identify areas for improvement and inform decision-making processes within the hospital.

Patient-Centered Recommendations: Develop a system for generating recommendations based on patient feedback and complaints to drive quality improvement initiatives. These recommendations should be focused on addressing patient needs and preferences, ultimately enhancing the delivery of healthcare services within the hospital.

Interdepartmental Collaboration: Foster collaboration and communication between different departments within the hospital to facilitate the resolution of complex complaints that may involve multiple stakeholders. This objective aims to break down silos and ensure a coordinated approach to addressing patient concerns effectively.

III. LITERATURE REVIEW

The research based on system dynamics Modelling And Simulation, This paper employs a system dynamics approach to analyze the intricate relationships among customer complaints, complaint-handling abilities, customer satisfaction, repeat purchases, and loyalty in the context of the mobile phone industry in China. By modeling and simulating these dynamics, the study uncovers the hysteresis effect, demonstrating that customer behavior doesn't change immediately in response to complaint management. The paper also highlights the interplay between complaint rates and complaint-handling abilities, showing that adjusting these factors concurrently can optimize the system's performance. It offers practical insights for businesses to dynamically adapt their strategies, ensuring effective complaint management and ultimately enhancing customer satisfaction, loyalty, and business success. [1]

Authors explores the usage of complaint registration system in India. In many cases, people want to file a complaint or be whistleblower but fear consequences from disclosure of identity. On the other hand, authorities though focused on authenticity of the complaint and not identity of complainant yet it is difficult to establish authenticity of the complaint registered in case of anonymous or pseudonymous complaints. This system protects complainants' identities using government-issued identity numbers and suggests a unique reference number for tracking complaint. [2]

Authors enhance the interaction between students and universities by introducing an e-complaint web based system. they provide model for handling student complaints is replaced with a user-friendly web application. Students can easily register complaints based on categories, and administrators can manage these complaints efficiently using keywords and categories. This system simplifies the process of submitting and organizing complaints, helping to resolve issues in a timely manner. It streamlines the communication between students and the higher authorities within educational institutions. The proposed system automates the complaint handling process, making it more effective and accessible. [3]

The paper aims to investigate the potential impact of blockchain technology on the management of patient complaints in healthcare. The research involves a structured qualitative review and content analysis . they analyze complaint management in healthcare, exploring the implications of adopting blockchain for patient complaints, and identifying the limitations of using blockchain .it determine whether blockchain technology can enhance the integrity, security, and transparency of patient complaints. means blockchain-based system for managing patient complaints holds promise, but it also has challenges related to cybersecurity, scalability, confidentiality, readiness for adoption, and uncertainty about its impact. [4]

This paper handle customer complaint service-oriented businesses, particularly in the context of a restaurant chain. complaint resolution can lead to a decline in competitiveness and customer loyalty. The study identifies communication gaps and delays in traditional complaint reporting methods, emphasizing the need for real-time decision support. The proposed framework offers an integrated system for complaint reporting, diagnosis, searching, and analysis, promoting seamless information sharing between restaurants branches. Real-time statistics and benchmarking comparisons between the existing and proposed models are key components, enhancing the ability to address customer complaints promptly and effectively, ultimately improving service quality and competitiveness. [5]

This study investigates the application of machine learning techniques for detecting and mitigating the growing threat of DoS/DDoS attacks in online activities. With the increasing reliance on technology, ensuring the security of computer networks is of utmost importance. they focus on effective detection of DDoS attacks, where the victim's computer is overwhelmed by traffic from multiple sources. use of ensemble methods and leverage two datasets, namely the MyHomeNetwork Traffic Dataset and the NSL-KDD dataset, to evaluate the detection accuracy. [6]

This paper addresses the Mobile Network Operators (MNOs) in understanding subscriber complaint behavior. The study presents a demo that employs topic modeling, specifically Latent Dirichlet Allocation (LDA), to extract relevant problems from subscriber complaints. These topics are visualized using LDAvis analytics. The authors compiled a dataset of customer complaints from available data, largest complaint website and validated their topic model using data from the largest online community website. The results reveal common and unique complaint topics, shedding light on MNOs' distinct issues based on subscriber experiences and feedback, offering valuable insights and potentially serving as a customer complaint analysis tool. [7]

The author implement mobile application, chatbot and web application, for solving the customer's dissatisfaction issue. Furthermore, the SCMS has the service for classifying the complaint, then automatically direct to the responsible department, and the service for finding the similar complaint to avoid submitting the duplicate complaint. The test result shows that this system is

able to reduce the time and procedures for complaint handling, increase the channel for filing the complaint, and increase the channel for progress reporting and tracking the status of the complaint.[8]

IV. METHODOLOGY

Patient complaint management encompasses a comprehensive strategy aimed at addressing various challenges while enhancing overall efficiency and patient satisfaction. We start by refining the complaint submission interface to provide patients and their families with a seamless and user-friendly platform. This includes integrating features that allow for the easy attachment of documents or images, ensuring that complainants can provide comprehensive context to their concerns. Utilizing advanced technology, we optimize the resolution process by implementing sophisticated algorithms that prioritize complaints based on severity. This ensures that urgent issues receive immediate attention, while also streamlining the routing of complaints to the relevant hospital departments. Throughout this process, transparent communication channels are established to keep complainants informed of the progress of their complaints, fostering trust and confidence in the system. It includes the implementation of a recommendation system powered by data analytics.

By analyzing complaint data, we identify common issues and develop actionable insights to address them effectively. This proactive approach not only resolves individual complaints but also allows for continuous improvement in service quality. To address challenges related to system scalability and real-time updates, we design the infrastructure to handle high volumes of complaints efficiently. This involves employing scalable solutions and optimizing the notification system to deliver updates in real-time without causing disruptions to the overall process. Additionally, we develop a robust categorization and tagging framework to classify complaints into specific categories and assign relevant tags, facilitating seamless routing and resolution. This system designed to revolutionize patient complaint management by leveraging technology, data analytics, and efficient communication channels. By prioritizing patient needs and streamlining the resolution process, we aim to enhance the quality of healthcare services while fostering trust and transparency within the healthcare ecosystem.

IV.I Use-Case Diagram:

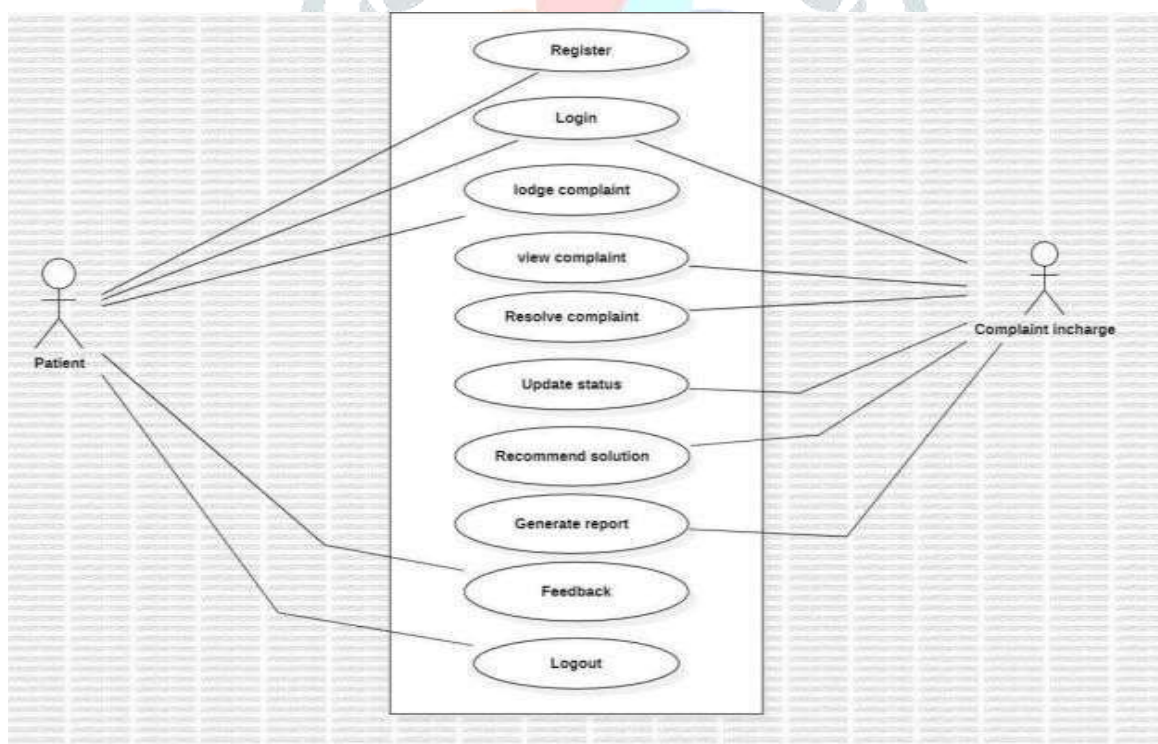


Fig -1: Use Case Diagram

The use case diagram encompasses various actors and use cases aimed at facilitating effective complaint management and continuous improvement efforts within the hospital setting. The system involves two main actors: the Patient and the Complaint Incharge. Patients interact with the system to register, log in, lodge complaints, view their complaint statuses, provide feedback, and log out. On the other hand, Complaint Incharge, representing hospital staff responsible for managing complaints, engages in resolving complaints, updating their status, recommending solutions, and generating reports.

Patients begin by registering and logging into the system, enabling them to lodge complaints regarding hospital services. They can view the progress of their complaints and provide general feedback beyond specific issues. Meanwhile, Complaint Incharge receives lodged complaints and initiates the resolution process, investigating issues, assigning tasks, and updating complaint statuses accordingly. They also provide recommendations for addressing complaints effectively and generate reports on complaint

resolution metrics and feedback analysis to inform decision-making processes and continuous improvement initiatives within the hospital.

IV. II Algorithm:

Geo-Fencing Algorithm:

It utilizes GPS coordinates to determine the current location of both the hospital and the user. By comparing the user's location with the predefined coordinates of the hospital, we can determine proximity and trigger relevant actions. combination of GPS sensors in the user's device and a database of hospital locations. When the user's device detects a change in location, it queries the database to determine if the user is within the vicinity of a hospital.

V. SYSTEM ARCHITECTURE



Fig -2: System Architecture Diagram

Architecture is structured in three main components: the client-side application, the server-side application, and the database.

Client-Side Application: This component encompasses the user interface and functionality accessible to both patients and Complaint Incharge staff through the app. The client-side application is developed using modern mobile app development frameworks. It offers a user-friendly interface with features for account registration, login, complaint submission, status tracking, feedback provision, and logout. The client-side application communicates with the server-side and update data in real-time.

Server-Side Application: The server-side application serves as the backend logic and data processing engine of the app. It is built using robust and scalable technologies. The server-side application handles user authentication, complaint resolution workflows, recommendation generation, report generation, and data analytics. It interfaces with the database to store and retrieve complaint data, user profiles, and system configurations securely.

Database: The database component stores and manages the app's data, including complaint records, user information, feedback, and system settings. To ensure data integrity, consistency, and scalability. The database schema is optimized to support efficient querying and retrieval of data, enabling fast access to information for complaint resolution, analytics, and reporting purposes.

VI. RESULT

In this paper, we have developed system enabling patients and their relatives to voice concerns and receive alternative solutions, we aim to enhance the overall healthcare experience. The system's feature to generate reports, including insights on disease-related deaths during survey Adds a valuable dimension to healthcare management. This initiative not only addresses individual grievances but also promotes a culture of continuous improvement and accountability in government hospitals. In essence, the project seeks to elevate the quality of healthcare by embracing transparency, responsiveness, and data-driven decision-making. It aspires to create a healthcare environment where patient feedback contributes to positive systemic changes, ultimately fostering a healthier and more supportive healthcare ecosystem.

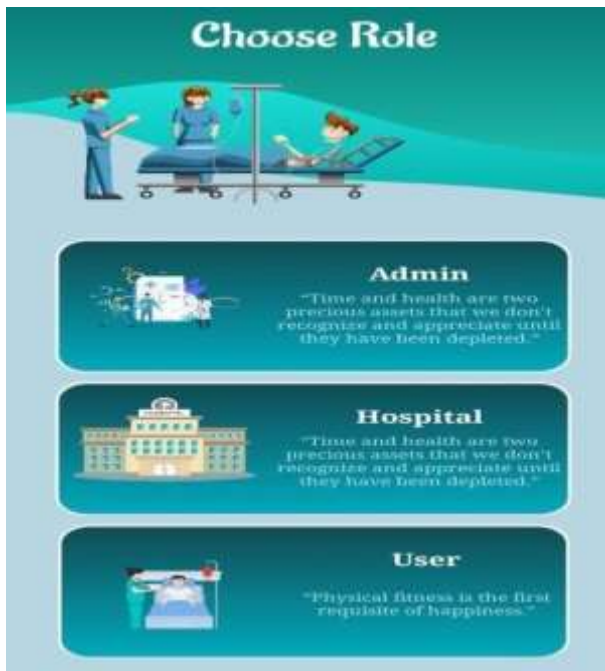


Fig 3 :- Choose Role



Fig 4 :- Admin Dashboard



Fig 5 :- Hospital Dashboard



Fig 6 :- User Dashboard

VII. CONCLUSION

In a traditional healthcare system, patients and their relatives often face challenges in voicing concerns and receiving alternative solutions, leading to a suboptimal healthcare experience. Moreover, the lack of comprehensive reporting mechanisms limits the ability to gain insights into disease-related deaths during surveys, hindering effective healthcare management.

This project emphasis transformative approach to healthcare management, centered around patient empowerment and systemic improvement. By providing a platform for patients and their families to voice concerns and receive personalized solutions, we aim to revolutionize the healthcare experience. Additionally, our system's ability to generate comprehensive reports, including

valuable insights on disease-related deaths, offers a new perspective on healthcare management. This initiative not only addresses immediate grievances but also establishes a foundation for continuous improvement and accountability within healthcare institutions. Through transparency, responsiveness, and data-driven decision-making, our project seeks to enhance healthcare quality and create an environment where patient feedback drives positive and lasting systemic changes. Overall, our project stands as a testament to the power of technology and collaboration in advancing healthcare towards a more patient-centric and effective future."

VII. REFERENCES

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