

Sanjeevni: A Web-Based Smart Hospital Management and Emergency Support System

Abstract

The modern healthcare system faces significant challenges in delivering timely, efficient, and coordinated care, especially in densely populated or resource-constrained regions. "Sanjeevni" is a web-based application designed to enhance hospital management and emergency response by integrating digital solutions for patient check-in, doctor availability, appointment scheduling, blood bank management, medical record access, queue tracking, and ambulance support. This paper outlines the motivation, design, implementation, and potential impact of Sanjeevni, a platform that empowers patients, healthcare providers, and administrators with real-time, accessible, and reliable tools for improving healthcare delivery.

Keywords

Healthcare, Hospital Management, Emergency Response, Web Application, Blood Bank, Patient Portal, Queue System, Sanjeevni

1. Introduction

In India and globally, hospitals continue to grapple with disorganized systems that hinder effective patient care and emergency response. Sanjeevni aims to digitize and centralize hospital services into a unified platform accessible via any device. The platform addresses key issues such as delayed patient registration, poor visibility into doctor availability, inefficient blood bank systems, and uncoordinated ambulance dispatch. By providing a comprehensive solution tailored for hospitals and users, Sanjeevni modernizes traditional systems while maintaining accessibility and ease of use.

2. Problem Statement

Patients face long queues, delayed emergency services, and fragmented medical records. Hospital staff struggle with resource tracking and real-time coordination. There is no single unified system that enables digital check-in, transparent doctor scheduling, emergency response integration, and centralized record-keeping—all of which are essential for quality care delivery.

3. Related Work

Several healthcare platforms such as Aarogya Setu, Practo, and 1mg provide individual services like appointments or health tracking but lack unified hospital-level infrastructure. Most existing systems fail to cover emergency integration, blood bank requests, and live queue management in a single platform.

4. Methodology and System Architecture

Sanjeevni follows a modular, web-based architecture built with modern frontend (HTML/CSS, JavaScript) and backend (Node.js/PHP, Firebase/SQL) technologies. Modules include:

- Patient Self Check-In
- Doctor Availability and Appointment Scheduler
- Blood Bank Management
- Medical Records Access
- Queue and Token Tracking
- Ambulance Dispatch System
- Admin Dashboard for Resource Management

Each module is integrated via secure APIs and built for responsiveness across devices. Role-based access control ensures personalized dashboards for patients, doctors, and administrators.

5. Features and Implementation

- Patient Dashboard: Access to appointments, records, and emergency features.
- Doctor Interface: Manage schedules, view patient data, update availability.
- Admin Panel: Monitor beds, equipment, and overall hospital resources.
- Blood Bank: Real-time availability and request/donate options.
- Ambulance Module: Request ambulance with GPS location tracking.
- Queue Management: Live token status and QR-based check-in.

6. Use Case Scenarios

- A patient books an appointment online, checks in via QR code, views their token status live, and accesses their past prescriptions.
- In emergencies, users can locate the nearest hospital and request an ambulance instantly.
- Admins track ICU bed usage and doctor availability in real time.

7. Discussion

Sanjeevni addresses the lack of unified digital infrastructure in hospitals. Its modular design allows for easy scaling and integration with existing systems. Future improvements could include AI-driven triage, integration with government EHR systems, and multilingual support.

8. Conclusion

Sanjeevni enhances healthcare accessibility, efficiency, and responsiveness by digitizing hospital and emergency services. It provides a robust foundation for smart healthcare systems and has the potential to scale nationally to improve outcomes and save lives.

9. References

- Government of India – Digital Health Mission
- Aarogya Setu App – Ministry of Health
- Practo, 1mg – Healthcare Platforms
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