MP-A-17

**PROJECT APPROVAL**

**LIBRARY RENEWAL STATUS SYSTEM**

Mini Project Abstract Approval submitted in partial fulfillment of the

requirements for the award of the degree

**BACHELOR OF TECHNOLOGY**

**In**

**INFORMATION TECHNOLOGY**

**By**

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**BHOJ REDDY ENGINEERING COLLEGE FOR WOMEN**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

(Sponsored by Sangam Laxmibai Vidyapeet, Accredited by NAAC with A grade, Approved by AICTE & affiliated to JNTUH) Vinay Nagar, IS Sadan Crossroads, Saidabad, Hyderabad- 500 059, Telangana

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**Problem Statement:**

In emergency situations, patients often struggle to find hospitals with available beds and specialized doctors. Manually searching for hospitals, making phone calls, and waiting for confirmation delays critical treatment. Additionally, hospitals face difficulties in maintaining real-time updates on bed occupancy and specialist availability. To address this, an automated hospital bed assignment system is proposed that provides real-time hospital availability information, facilitates ambulance booking, and assigns hospitals based on bed and specialist availability.

**Objectives:**

* To develop a web-based system that allows users to input their health issues and determine whether it is an emergency.
* To automate the process of checking bed availability using IoT-based force sensing resistors.
* To match patients with hospitals that have the necessary specialized doctors.
* To provide an emergency booking option for ambulances.
* To enable hospitals to manage their bed occupancy and doctor availability efficiently.
* To enhance the speed and accuracy of hospital assignments during emergencies.

**Existing System:**

Patients currently have to manually search for hospitals by making numerous calls or physically visiting multiple locations, which leads to delays in receiving critical care. Additionally, there is no real-time update on bed availability, making it difficult for patients to find hospitals with vacant beds. The lack of automated hospital databases further contributes to inefficiencies, as staff must manually verify and assign patients to available facilities, causing unnecessary delays. Moreover, there is no direct integration between ambulance services and hospital assignments, preventing seamless coordination in emergency situations.

**Disadvantages:**

* Critical delays in finding hospitals with available beds.
* No centralized system to check specialist availability.
* Hospitals struggle to keep track of real-time bed occupancy.
* Increased risk of mismanagement in emergency situations.

**Proposed System:**

The proposed system is a web-based application with two modules: User and Hospital. In the User Module, patients can enter their symptoms via text or audio, and the system determines if it is an emergency based on a predefined database. If an emergency is detected, users can book an ambulance, and the system checks for nearby hospitals with available beds and required specialists. Hospital details are displayed, allowing users to proceed to the recommended facility, while IoT-based force sensing resistors automatically update bed availability. The Hospital Module enables hospitals to manage bed occupancy and doctor availability, maintaining records of assigned patients and doctors. Automatic bed count updates occur through IoT sensor readings, and a real-time dashboard displays hospital data, including available beds and on-duty doctors.

**Advantages:**

* **Real-time Bed Tracking:** IoT-based force sensors detect occupied and available beds automatically.
* **Quick Hospital Assignment:** Users instantly receive hospital recommendations based on bed and specialist availability.
* **Emergency Handling:** Users can book ambulances directly through the system.
* **Hospital Efficiency:** Hospitals can efficiently manage bed assignments and patient details.
* **Reduced Manual Effort:** Eliminates the need for manual hospital searches and inquiries.

**Modules:**

**1. User Module:**

* Symptoms input and emergency classification.
* Hospital assignment based on bed and specialist availability.
* Ambulance booking option.
* User dashboard with hospital details.

**2. Hospital Module:**

* Hospital login and dashboard access
* Bed occupancy management via IoT sensors
* Doctor availability tracking
* Patient record management

**Functional Requirements:**

The functional requirements outline the specific capabilities and behaviors this hospital bed queuing system must exhibit to fulfill its purpose. These requirements define the core functionalities of the system.

* User registration and login
* Symptom input through text or voice
* Health issue classification
* Hospital and doctor availability search
* Bed availability tracking using IoT sensors
* Emergency ambulance booking
* Hospitals registration
* Patient details management

**Non-Functional Requirements:**

These are basically the quality constraints that the system must satisfy according to the project contract. The priority or extent to which these factors are implemented varies from one project to other. They are also called non-behavioral requirements.

They basically deal with issues like:

* Portability
* Security
* Maintainability
* Performance
* Reusability
* Flexibility
* Scalability
* Performance
* Usability

**Software Requirements:**

* **Backend:** Flask (Python), Flask-CORS, pymysql
* **Database:** MySQL
* **Frontend:** HTML, CSS, JavaScript
* **APIs:** OpenStreetMap Nominatim API (for geolocation), Google Maps API (for ambulance routing)
* **IoT Integration:** Data collection from force sensing resistors

**Hardware Requirements:**

* **Processor:** Intel i3 or higher
* **RAM:** 8GB or more
* **Storage:** 500GB HDD or SSD
* **IoT Sensors:** Force sensing resistors for bed occupancy tracking