

Smart Ambulance & Hospital Alert System Using GPS and Real-Time Data Analytics

Abstract:

In emergency situations like road accidents, timely response is critical to save lives. However, in India, the availability of numerous private and government ambulance services leads to confusion and delays. This project proposes a smart healthcare data analytics system that connects accident reporters to the nearest available ambulance (government or private) using GPS. Once an ambulance is dispatched, it collects basic patient and accident information and sends it to the nearest hospital. The hospital receives this data in real-time and prepares necessary resources such as beds, ICU, and medical staff before the patient arrives. This system reduces response time, improves coordination, and enhances patient survival chances.

Existing System:

No centralized emergency number to reach all ambulance providers.

Delay in ambulance arrival due to poor coordination.

Hospitals are often not informed in advance about incoming emergency cases.

Manual communication leads to longer wait times and inefficient resource use.

No real-time data sharing between ambulances and hospitals.

Proposed System:

A single emergency number/app connects to both private and government ambulances.

The system uses GPS to locate the nearest available ambulance.

Ambulance personnel fill out a short digital form about the accident.

Data is instantly shared with nearby hospitals, allowing them to prepare in advance (beds, equipment, staff).

A simple dashboard displays incoming patient information and estimated arrival time.

Data analytics can later be used to analyze accident hotspots, hospital readiness, and response times.

Literature Survey:

1. "Healthcare Big Data Analytics: A Review" — Journal of Healthcare Engineering

Discusses the role of big data in improving patient care, resource management, and early intervention.

2. "Smart Ambulance System using IoT" — IEEE Xplore (2021)

Proposes IoT-based ambulance systems for monitoring patient health and GPS tracking but lacks hospital integration.

3. "Emergency Response System using Real-Time Location Tracking" — International Journal of Computer Applications (IJCA)

Focuses on real-time location of ambulances, but doesn't integrate analytics or hospital preparedness.

4. "Ambulance Allocation Optimization Using GIS" — Elsevier (2020)

Uses GIS data to allocate ambulances optimally but doesn't include communication with hospitals.

5. "Integrated Healthcare and Emergency Response System" — SpringerLink (2022)

Introduced a system where hospital resource status is synced, but requires high-cost infrastructure.