Introduction

An Ambulance Management System is one of the subsystems of an EMS, and serves to effectively and efficiently support dispatching and tracking of ambulance services. The situation of ambulances at the present time is problematic in many developing countries like Nepal, which shows the necessity of developing an effective manage their system. This system generally has elements like GPS navigation, automatic dispatch when close, syncing with databases of the hospitals, and other facilities for both the paramedics along with the dispatchers. Thus, the use of such a system can really decrease the response times and, therefore, increase the number of lives saved and effectiveness of resource usage.

In this paper the themes that manifest are the challenges related to ambulance services in Nepal. There are immense challenges facing the attainment of adequate healthcare services especially in the rural and remote regions including availability of timely ambulances. The preexisting system is disjointed, various entities that supply different services are not integrated with one another, which results in inefficiency and misunderstandings. In addition, there are further concerns which have to do with the servicing and accessibility of the ambulances more particularly where they are in the somewhat remote and rugged areas. But things are even worse in areas with heavy traffic as seen from cities like Kathmandu hence increasing the response time even further. From this argument, it is realized that for these services, there is no central area of coverage that provides for their management and monitoring thus resulting to inefficiencies and sometimes even life threatening delays. These problems could arguably be solved by the adoption of a sound Ambulance Management System in Nepal that would give timely information and subsequently facilitate the enhancement of the flow of services, making it easier to deliver emergency medical services to clients.

Problem Statement

The situation with ambulance services in Nepal continues to be in a critical state as it is expounded by several problems that affect the delivery of timely and efficient emergency medical services. These hardships are more apparent where ambulances are hard to come by, mainly in the rural and remote areas where infrastructures are poorly developed. In urban areas traffic jam and poor traffic management only make the situation worst meaning that a delay situation can actually become fatal. Due to inadequate national standards of consolidating and organizing the ‎ambulance services, such issues arise and lead to misuse of resources, poor interface between organizations and unequal service delivery. As all these problems persist, the outcomes of emergency circumstances in Nepal stay bleak, on top of threatening the lives of patients who require attentive care.

Challenges in Accessing Ambulance Services in Nepal

* Lack of Centralized Coordination
* Poor Communication Infrastructure
* Traffic Congestion in Urban Areas
* Absence of Real-Time Tracking
* Limited Public Awareness

objective

* To identify the ambulance locations on the road network in real-time using GPS coordinates.
* To find the fastest routes through which all the ambulances can reach the accident site.
* To find the ambulance which can immediately reach the accident site as compared to other ambulances is analyzed.
* To find the fastest routes from all the accidents to reach the hospital immediately.

Methodology

a. Requirement Identification

Thus, identifying the requirements for an Ambulance Management System (AMS)is an important stage to achieve expected goal and meet the needs of different stakeholders as well as to provide effective functioning of the system in emergency situations. These can be named as functional, non-functional requirements.

1.Functional Requirements

* Real-Time GPS Tracking
* Automated Dispatch System
* Patient Information Management
* Reporting and Analytics
* User Management

2. Non-Functional Requirements

* Scalability
* Performance
* Security
* Reliability
* Interoperability

b. Feasibility Study

1. Technical Feasibility

Thanks to the current advances in the development of cloud computing, mobile networks and GPS, the technical support for Ambulance Management System (AMS) is therefore sound. Almost all the regions in Nepal have good internet connectivity that is requisite technological facilities for availing smart city services. In rural areas despite the challenges found there, with advancement in the mobile networks extension it will be easier to implement a internet-based AMS.

2. Economic Feasibility

The improvement in efficiency and coordination in ambulance services can lead to cost savings in the long run, making the system economically sustainable.

3. Operational Feasibility:

The success of an AMS depends on the willingness of ambulance providers, healthcare institutions, and government bodies to adopt the system. With proper training and awareness programs, it is feasible to ensure high user adoption, particularly given the clear benefits in improving emergency response.