

A REVIEW ON DEVELOPMENT OF ONLINE BOOKING SYSTEM FOR MEDICAL AMBULANCE

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Abstract: - *Successful and effective public help conveyance like medical care administrations is vital in today's society, particularly in the provincial regions. Individuals in provincial regions are relied upon to approach public offices consistently. Nonetheless, these administrations are not generally accessible when they are required. This paper review the issues associated with development of online booking system for ambulance. The difficulties goes from helpless correspondence, helpless street organization and unstructured location to non-appearance of ambulances driving loss of lives that are preventable. This paper did a review and provide its solution for effective implementation of online booking system. Based on the literature review we planned and carried out a framework model utilizing versatile application innovations to offer practical administrations to patients during crisis circumstance. It is expected to decrease long lines in clinics and long sitting tight periods for an emergency vehicle through area based administrations. By utilizing this application, lives in the provincial regions can be made more straightforward and forestalls loss of lives by giving ideal reaction from the suitable medical care suppliers during crises.*

Keywords: - *Emergency, Ambulance, Online Booking System, medical facility, human resources.*

1. INTRODUCTION

Medical science has been a blessing to live on earth. Any critical patient with minimal probability of recovery can be treated with a radical health response. However, during an emergency, a patient needs to be quickly treated. Evacuating a sufferer to the hospital looks manageable but, in concrete, it is considerably complicated; moreover, it becomes complex in traffic ways. Mumbai stands a cosmopolitan city, among a hurried expansion in the abundance of vehicles, transportation dilemmas, lack of footpaths and hazardous streets for one self to drive or to pass.

It has been observed that casualties concerning medical response have led to critical health concerns or even death. This was due to the complexity within the response system, conversely the technical fiver. An effective, simple and user-friendly emergency response system with necessary facilities could be a boon. However, a platform is needed which will negotiate between the patients, ambulances and hospitals. With the rapid advancement in internet connectivity, mobile cab booking has already proved its service at doorstep

feature; such services in the health sector are foreseen to make a scoring goal.

2. LITERATURE REVIEW

In recent years, the world has witnessed the explosion in the growth of ICTs, which has become the ultimate drivers of development in today's e-society. Among such development is the impact that has been created in the provision of effective and efficient healthcare delivery. However, the impact has been one-sided since people in the urban areas only enjoy it while most rural areas are still in the "dark". This has led to loss of thousands of lives that could have been preventable if need facilities were available and accessible. In addition, the transport services that could have been an advantage, contributed negatively to the accessibility of such facilities. A particular situation that motivated for the solution presented in this paper is the case of healthcare challenges faced by people in the rural areas of Mafikeng, SA where basic and major healthcare facilities are absent. Moreover, poverty, lack of other basic public facilities such as police stations, libraries, and information centres such as public computers and Internet, very poor public transport services, lack of Emergency Medical Services (EMSs) and so on are the state of the affairs.

A series of comprehensive searches was carried out. The following keywords were chosen: 'Emergency Medical Services', 'Emergency Care', 'Emergency Medicine', 'Emergency Nursing', 'Evidence-Based Emergency Medicine', 'Prehospital'/ 'Prehospital Care', 'Ambulance Service', 'Ambulance Diversion', 'Air Ambulance', 'Out-of-hospital', 'Out-of-hospital Cardiac Arrest', 'Emergency Department', 'Emergency Room', 'Emergency Nurse', 'Emergency Nurse Practitioner', 'Paramedic', 'Emergency Medical Technician' and 'Transportation of Patient'.

With the efforts to combat the challenges faced in the provision of ambulances to rural areas during emergency situations, this section highlights on some existing and similar systems in the perspective of mobile phones or devices. There are briefly outlined as follows:

ElgarejMouhcine et al. [1], The Ant algorithm has been used to find the shortest and optimal path for an ambulance. This algorithm is self-adapted, distributed algorithm based on the behavior of almost real ants. The major purpose of this research is to find the fastest path by proposing a new distributed system based on Ant Colony Optimization algorithm to get the shortest path for ambulances.

OmkarUdawan et al. [2], Signal Control Algorithm have been used here. Wireless sensor networks, E-MAC, Ant colony optimization Algorithm, Packet combining protocol etc. also were been used. To transmit data in wireless sensor networks, congestion may occur, which can be reduced by using various protocols like Packet retransmission.

Cheng Siong Lim et al.[4], the review of dynamic ambulance relocation models from the perspective of dispatch policies has been discussed here. The path between the reviewed ambulance dispatch policies and real-life policies is featured here.

Malusi and Kogeda [6] developed a mobile transportation system in 2012 to improve the hours of service needs and reduce the time waiting for a transport. The system allows passengers to check if there is any transport coming as well as the availability of other passengers on the way and space. The systems performance was evaluated as proving 50% improved earnings due to operations efficiency. However, its primary focus was on improving public transportation and not the health services or ambulance transportation services. In a similar system, though patients-oriented, Global Rescue [8], an American-based company that provides medical advisory services, security and emergency flights worldwide employed the use of satellite communication to help remote patients in need of emergency services. It employed a satellite phone and one can subscribe. However, the person would have to inform the authority of their existing health problems so that it can be kept in their files as well as being given a first aid bag. In the event of emergency, by communication via a satellite phone [9], the patient can be told on what to do using the equipment in the first aid bag, and evacuation to a hospital can be arranged if needed. Moreover, due to high cost of satellite phones and related transmission charges [7], some travellers to remote regions are relying on developed smart-phone applications and devices such as the De Lorme in Reach, which links a smart phone with a satellite via Bluetooth. The limitation of the system is that it support only few text characters and if immediate medical assistance is needed, the texting does not work very efficiently. This could have been a better solution for the situation in the rural areas, only if poverty was the challenge. Another similar system is Globe Fleet Ambulance Tracking and Task Management System. It provides management solutions using mobile devices, which allow for reporting, tracking and assignment.

In addition, the Ad-din Hospital in 2008 put in place a cost-effective ambulance service that utilized mobile phones and GPS tracking. It was established to assist women in Dhaka, Bangladesh to have prompt access to emergency obstetric care [11]. It manages about 66 ambulances scattered throughout the city and an ambulance desk near Ad-din Hospital entrance. For efficiency and quality of service, each ambulance in the Ad-din network is equipped with a geography positioning system (GPS) tracking device to enable the dispatchers to determine which driver can reach a given patient with greatest ease and speed. However, the system does not offer direct communication between the patients or relatives and the paramedics. Also in the Northern Ireland, Ambulance Services are offered using computer-

aided dispatch system, which records all of the call-related details. This system is linked in with four other systems in which each perform interrelated but separate functions [12] which are gazetteer, the radio and telephony system, an automated vehicle location system and a mobile data terminal. The components operate at different control centers and but cooperate to enable effective and efficient coordination of emergency call handling and response dispatch [13]. However, the challenge is lack of integration between them. Moreover, people in need of emergency service still have to call and wait without knowing how far or how long it will take the service providers to reach them.

In the Western Cape Province of SA, when the paramedics receive a call requesting an ambulance, the caller is interrogated in order to be able to determine the degree of the emergency. All emergency calls are prioritized and response is based on the nature of the incident which are classified as either priority 1- immediate response (e.g. traffic injury, drowning, and acute MI), Priority 2 - As soon as possible (e.g. abdominal pain, fever, etc.) and Patient Transport (e.g. Clinic referral for consultation in outpatients) [8]. With this system, transport were provided for patients through a booking system, separate dispatchers, calls are managed effectively, tracked, and performance adjusted in real-time. In the North West province, Mafikeng, this system could probably be in existence but sometimes ambulance do not even appear. The reason could be that the degree of emergency are false due to how people are interrogated. Consequently, all responses and reported incidents are treated equally to reduce the phone conversation. Considering the nature of the current system in the perspective of access to ambulance transportation by calls, the challenge is centred on the identification and treatment of emergency and nonemergency situations in the calls. The system itself is not accurate and the stated understanding of dispatch criteria to identify the nature and severity of patients' needs ranges from 68% to 99% where a slight section of dispatch codes can reliably ascertain each situation.

Abelsson et al. [12] did study to describe specialist ambulance nurses' perceptions of assessing patients exposed to severe trauma. They concluded that be prepared for emergencies, confidence in one's own leadership and developing professional knowledge.

Bruce et al. [13] did study to explore the experiences of nurses receiving patients who were brought into hospital as emergencies by ambulance crews through an analysis of the handover and triage process. They concluded that the interplay between prehospital and hospital personnel is vital for the patients. Prehospital reporting was experienced as a dialogue for planning, the symbolic handover and the ideal and nonideal handover.

Chandran et al. [14] analyzed patient perspectives of the ambulance system in Karachi to understand how to improve ambulance use. They found major themes that affect patients' decision-making with regard to ambulance use were a mistrust of the ambulance system or providers and a sense of inadequacy of the local system as compared with international standards. There was a fundamental

misunderstanding of the role of ambulance services in the healthcare infrastructure.

Chew et al. [15] did research to find out the public's perception and expectations of the ambulance services in one university hospital. They found that the ambulance personnel were perceived as attentive and gentle by the patients. The equipment and comfort in the ambulance were rated as not so good by the patients.

Wireklint Sundstrom et al. [16] did study to highlight prehospital care and how ambulance personnel prepare for their everyday caring assignments and avoid making premature decisions. They found the feeling of certainty and the unknown in a new situation, which means that the ambulance personnel are prepared at the same time as they are unprepared; in other words, they are prepared for the unprepared.

Oberg et al. [17] did research to gain an understanding of how EMS personnel perceive ambulance transport of children. They concluded that transporting children induces stress and is deemed a precarious task by EMS personnel mainly because children are considered more vulnerable than adults are and because of the necessity to separate the child from the parent during transport. There is a conflict between medical and emotional well-being and traffic safety during the transportation of children and a fear of insufficient ability to care for the child. The EMS personnel's vulnerability is evident in the complicated care situation associated with transporting children in an ambulance.

3. CONCLUSION

When the planning for developing a web application project like this started, an extensive search has been done on internet to find some similar work. But there are no familiar or effective platform found. Based on these challenges, it is obvious and clear that an improved system is needed that has the capacity to provide visual proof of the nature the emergency situations to service providers for appropriate actions to be taken to save patients' lives.

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