

Application on basic life support and first aid

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Abstract

Medical emergencies such as trauma, poisoning, burns, drowning and asthma exacerbations account for a major proportion of preventable deaths in Sri Lanka, where delays in pre-hospital intervention are common. Despite high smartphone penetration, existing first aid apps are predominantly foreign, English-only, and not aligned with Sri Lankan emergency patterns or healthcare pathways. This project aimed to develop a localized mobile application that provides real-time first aid and Basic Life Support (BLS) guidance to bridge the critical gap between emergency onset and hospital care.

A comprehensive literature review was conducted on current first aid mobile applications, gaps in public knowledge, and emergency trends in Sri Lanka. Ten common emergencies were identified, and algorithm-based first aid flows were designed according to WHO Integrated Management of Adolescent and Adult Illness (IMAI) guidelines. A prototype app was developed with three user modes — caregiver, paramedic, and administrator - integrating multilingual (Sinhala, Tamil, English) text, voice and AI-assisted visual guidance, GPS hospital navigation, quiz-based learning, and live doctor connectivity.

The application enables laypersons to manage burns, animal bites, trauma, choking, asthma and other emergencies through instant voice/visual instructions while simultaneously contacting ambulances or hospitals via GPS. Administrators can update medical content, while paramedics receive real-time emergency alerts with guided navigation to patients. The app also tracks user engagement with emergencies and learning modules.

This prototype demonstrates the feasibility of a context-aware, multilingual, interactive digital solution to improve emergency response capacity in Sri Lanka. By empowering bystanders during the pre-hospital phase, the app has the potential to reduce morbidity and mortality while strengthening community-level preparedness. Future development will focus on enhancing AI accuracy, offline use and national emergency system integration