

# ZigBee 技術應用於緊急救護裝備管理之研究

## Application of ZigBee Technology in Emergency Rescue Equipment Management

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### 摘要

緊急醫療服務為急診醫學重要的一環，涵蓋了到院前救護（Prehospital Care）及到院後的急診醫療服務等。依緊急醫療救護法規定，其功能有：(1) 緊急傷病或大量傷病患之現場醫療處理；(2) 送醫途中之緊急救護；(3) 離島、偏遠地區重大傷病患之轉診。執行緊急醫療救護之人員，為醫師、護理人員及救護技術員。

因消防機關 24 小時待命以應付緊急事故的特性，為增進急重症患者急救時效，利用消防機關來發展快速的到院前緊急醫療服務是一可靠且正確的選擇，在消防機關中，提供這種到院前緊急醫療的人員是經由訓練的救護技術員（Emergency Medical Technician, EMT），運用救護車上之救護裝備，在醫師直接或間接的醫療管制下，依照病人的主訴，執行到院前病患處理的工作。

然而「工欲善其事，必先利其器」，目前談到緊急醫療服務大都著重於救護技術員（Emergency Medical Technician, EMT）的訓練，而忽略掉救護裝備的管理與運用，救護車上的裝備依緊急醫療救護法規定很多且複雜，而現行消防機關針對這些救護裝備只是靠保管人的清點，如果保管人未克盡職守，沒有依照規定按時清點，將來發生了問題不是懲處就可以解決，而可能是人命的重大傷亡，事關人民的生命安全，所以這套管理制度根本不適合時代潮流，因為牽涉“人”的因素太大，故本研究將 ZigBee 技術導入救護裝備的管理，建立一套有效的管理機制。

關鍵字：ZigBee 技術、救護裝備、EMT

### Abstract

Emergency medical service is an important aspect of emergency medicine, which includes prehospital care to the emergency medical service after arrival at the hospital. According to the regulations of Emergency Medical Care Law, its functions include: (1) the on-site medical treatment of emergency injury or illness, or of a great number of patients of injury or illness; (2) emergency care on the way to the hospital; (3) transferring of patients of significant illness or injury in far-away islands and remote areas. The personnel who carry out emergency medical care are doctors, nursing staff, and rescue technicians.

Because fire departments are on alert 24 hours a day to cope with emergency events, in order to increase the efficiency of rescuing patients with serious or acute conditions, it is

a reliable and correct choice to use fire departments to develop fast prehospital emergency medical service. In fire departments, the personnel who provide such prehospital emergency medical treatment are the trained Emergency Medical Technicians (EMT), who use rescue equipment on the ambulances to conduct prehospital treatment for the patients, with the direct or indirect medical control by doctors, according to the patients' primary complaints.

However, in order to carry out their tasks, they must first have the correct tools. Most of the discussion about emergency medical services emphasize training of the Emergency Medical Technicians (EMT), but overlook the management and utilization of rescue equipment. Equipment on ambulances, according to the regulations of the Emergency Medical Care Law, are numerous and complicated. Current fire departments only rely on the inventory of keepers of the rescue equipment; if the people in charge do not do their jobs, and do not create inventories according to times specified by the regulations, the problems that may occur cannot be resolved by punishment, but may result in serious casualties. People's lives are at stake, so this management system does not at all conform to the times. Since the factor of "people" is highly involved, this study introduces ZigBee wireless transmission technology into the management of rescue equipment, to establish an effective set of management mechanisms.

Keywords: ZigBee technology, rescue equipment, EMT

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