

# Patient Data Prioritization in the Cross-Layer Designer of Wireless Body Area Network

saeid daghagheleh\*,gholamhossein ekbatani fard,

Designing of novel routing protocols, structures of MAC super frames and physical frames is considered as challenging issue of WBAN health applications. This problem has attracted much attention about designing optimum solutions in cross-layer architecture and protocols. As a result, in this thesis, beside utilizing fuzzy AHP method, we also provide a study on routing layer and both Mac and PHY layers of IEEE 802.15.4 and IEEE 802.15.6 for being cross-layered in WBAN. This proposed model should capable of choosing effective and efficient path for essential BMS sensors in terms of low temperature; residual energy and minimum hop number. In this study, once message received by system, it is necessary to investigate the importance of messages. After primary examining on data, they prioritized first and then sent by system. Amount of 98.8 % of all data has been correctly prioritized. In fact, this system adjusts data in such a way that suitable data sent to physician so he/she could categorize them properly. After obtaining results and comparing them with real data physicians, we found that performance of our system is about 98.8%. This remaining 1.2% was due to early receiving of unimportant information by the system.

**Keywords :** Keywords: WBAN, Cross-layer protocols, Fuzzy AHP, BMS Sensors

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