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Monitoring Team Effectiveness using Wearable Sensor Network

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Abstract: This paper presents a stochastic modeling framework for store-and-forward packet routing protocols in Wireless Body Area Networks (WBAN). A prototype WBAN has been constructed for experimentally characterizing and capturing on-body topology disconnections in the presence of ultra short range radio links, unpredictable RF attenuation, and human postural mobility. Delay modeling techniques for evaluating single-copy on-body DTN routing protocols are then developed. End-to-end routing delay for a series of protocols including opportunistic, randomized, utility-based and other mechanism that capture multi-scale topological localities in human postural movements has been evaluated. Performance of the analyzed protocols is then evaluated experimentally to compare with the results obtained from the developed model.