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A framework for enabling patient monitoring via mobile *ad hoc* network

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A critical component of comprehensive patient monitoring is reliability in communication between the patients and the healthcare professionals without any time and location dependencies. Patient monitoring applications largely rely on infrastructure based wireless networks for signal transmission. However, infra-structure based wireless networks till date, suffer from unpredictable network coverage and have thus been attributed to the unpredictable communication reliability of patient monitoring applications. This research investigates an approach based on leveraging mobile *ad hoc* network to address the challenge of enhancing communication reliability in the context of patient monitoring. Mobile *ad hoc* network, formed among patient monitoring devices, has the potential of enhancing network coverage and enabling signal transmission from an area which has low or non-existent coverage from infrastructure based networks. In order to utilize mobile ad hoc network in the context of patient monitoring we propose (1) power management protocols that address the challenge of managing the low battery power of patient monitoring devices while maximizing communication reliability and (2) a framework that models the complex decision logic involved in leveraging mobile *ad hoc* network for diverse patient monitoring scenarios. Analytical evaluation of the proposed approach supports the premise that mobile *ad hoc* network formed among patient monitoring devices can enhance the reliability of signal transmission thereby improving the quality of patient monitoring applications. Technical and managerial implications of the research findings and the direction of future are discussed.

Biography

Sweta Sneha is an Associate Professor of Information Systems at Kennesaw State University. Her research interests include m-health/e-health, social media and healthcare, mobile commerce, ubiquitous computing, and wireless networks. She has authored over 50 publications and national/international journals and conferences and has delivered several invited speeches and tutorials/workshops. She is credited with launching many local and global engagement efforts in the realm of Health Management and Informatics at Kennesaw State University and has received several grants to support her work. She is the author of the book *Revolutionizing Health Monitoring*. She has served as a co-chair of Clinical Research in Georgia conference and facilitated fund raising for the conference. The conference has been successful in attracting further investment and economic development in the area. She has been the co-chair of "m-Health Scalability and Sustainability" for Americas Conference on Information Systems (AMCIS) since 2009.

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