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Private and Secured Medical Data Transmission and Wireless Networks using Smart Quick Response QR Code

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Abstract: *The convergence of Internet of Things (IoT), cloud computing and wireless body-area networks (WBANs) has greatly promoted the industrialization of e-/m-healthcare (electronic-/mobile-healthcare). However, the further flourishing of e-/m-Healthcare still faces many challenges including information security and privacy preservation. To address these problems, a healthcare system (HES) framework is designed that collects medical data from WBANs, transmits them through an extensive wireless sensor network infrastructure and finally publishes them into wireless personal area networks (WPANs) via a gateway. Furthermore, HES involves the GSRM (Groups of Send-Receive Model) scheme to realize key distribution and secure data transmission, the HEBM (Homomorphic Encryption Based on Matrix) scheme to ensure privacy and an expert system able to analyze the scrambled medical data and feed back the results automatically. Theoretical and experimental evaluations are conducted to demonstrate the security, privacy and improved performance of HES compared with current systems or schemes. Finally, the prototype implementation of HES is explored to verify its feasibility.*

Keywords: Hospital, Patient, Medical, Doctor

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