

# Private and Secure Medical Data Transmission using QR Code

Harshada S. Nichit<sup>1</sup>, Mitali J. Gadge<sup>2</sup>, Pallavi S. Sonawale<sup>3</sup>, Sneha S. Gadekar<sup>4</sup>, Prof. Rote R. R.<sup>5</sup>  
Students<sup>1,2,3,4</sup> and Guide<sup>5</sup>

Samarth Group of Institution College of Engineering, Belhe, Maharashtra, India

**Abstract:** The concurrence 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 brandish of e-/m-Healthcare still faces many challenges including information security and privacy protection. To address these problems, a healthcare system (HES) framework is designed that collects medical data from WBANs, transmits them through an large wireless sensor network infrastructure and finally issue them within wireless personal area networks (WPANs) via a gateway. Furthermore, HES involves the GSRM (Groups of Send-Receive Model) scheme to realize key classification and secure data transmission, the HEBM (Homomorphic Encryption Based on Matrix) scheme to ensure privacy and an expert system able to analyze the clamber medical data and feed back the results automatically. Theoretical and experimental estimate are conducted to display 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 possibility.

**Keywords:** Internet of Things, medical management, wireless sensor network, safety, privacy protection, key distribution

## VI. REFERENCES

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