Ph: 9585554590, 9585554599
Email: support@salemsmartreach.com
URL: www.salemsmartreach.com

A Privacy-Preserving Attribute-based Authentication System for Mobile Health Networks

ABSTRACT:

Electronic healthcare (eHealth) systems have re- placed paper-based medical systems due to the attractive features such as universal accessibility, high accuracy and low cost. As a major component of eHealth systems, mobile healthcare (mHealth) applies mobile devices, such as smartphones and tablets, to enable patient-to-physician and patient-to-patient com- munications for better healthcare and quality of life (QoL). Unfortunately, patients' concerns on potential leakage of personal health records (PHRs) is the biggest stumbling block. In current eHealth/mHealth networks, patients' medical records are usually associated with a set of attributes like existing symptoms and undergoing treatments based on the information collected from portable devices. To guarantee the authenticity of those attributes, PHRs should be verifiable. However, due to the linkability between identities and PHRs, existing mHealth systems fail to preserve patient identity privacy while providing medical services. To solve this problem, we propose a decentralized system that leverages users' verifiable attributes to authenticate each other while preserving attribute and identity privacy. Moreover, we design authentication strategies with progressive privacy requirements in different interactions among participating en- tities. Finally, we have thoroughly evaluated the security and computational overheads for our proposed schemes via extensive simulations and experiments.