A Privacy-User-Friendly Scheme for Wearable Smart Sensing Devices Based on Blockchain

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Abstract	Wearable smart sensing devices presently become more and more popular in people's daily life, which also brings serious problems related to personal data privacy. In order to provide users better experiences, wearable smart sensing devices are collecting users' personal data all the time and uploading the data to service provider to get computing services, which objectively let service provider master each user's condition and cause a lot of problems such as spam, harassing call, etc. This paper designs a blockchain based scheme to solve such problems by cutting off the association between user identifier and its sensing data from perspective of shielding service providers and adversaries. Firstly, privacy requirements and situations in smart sensing area are reviewed. Then, three key technologies are introduced in the scheme including its theories, purposes and usage. Next, the designed protocol is shown and analyzed in detail. Finally, security analysis and engineering feasibility of the scheme are given. This scheme will give user better experience from privacy protection perspective in smart sensing area.
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Scalability data privacy Protocols Resiliency Human behavior pubcrawl privacy blockchain service providers Public key human computer interaction sensors privacy protection ring signature user experience wearable computers blockchain based scheme Intelligent sensors personal data privacy privacy-user-friendly scheme smart sensing smart sensing area stealth address user identifier wearable smart sensing devices Computing Theory and Privacy