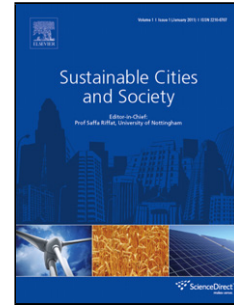


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# Provably Secure Pseudo-Identity Based Device Authentication for Smart Cities Environment

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## Abstract

IoT based smart city idea is evolving with an intention of improving the quality of citizens' life by practicing information and communication technologies. Smart city concept is believed to be possible by integrating the evolving technologies such as internet of things (IoT), automation and machine learning in which IoT holds the key role. Authentication has already been identified as a foremost security concern around the IoT, as millions of small devices go online and begin to share their data. Authentication in IoT environment mainly considers the three types of communications: IoT device - IoT device, IoT device - IoT gateway, and IoT gateway - mobile client. In this paper, we design a protocol to address the authentication process between IoT gateway and mobile client. The proposed protocol's security is analyzed formally and informally to demonstrate robustness. Performance analysis of the proposed protocol has also paid adequate attention to show the probability of implementation in real time applications.

**Keywords:** Security, credential privacy, mutual authentication, IoT, smart city

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