A Secure Handshake Scheme with Pre-negotiation for Mobile-hierarchy City Intelligent Transportation System under Semi-honest model

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Abstract—Mobile-hierarchy architecture was widely adopted for query a deployed wireless sensor network in an intelligent transportation system recently. Secure handshake among mobile node and ordinary nodes becomes an important part of an intelligent transportation system. For dividing virtual communication area, pre-negotiation should be conducted between mobile node and ordinary node before formal handshake. Pre-negotiation among nodes can increase the odds for a successful handshake. The mobile node negotiates with an ordinary sensor node over an insecure communication channel by private set intersection. As an important handshake factor, Attribute set is negotiated privately among them in local side. In this paper, a secure handshake scheme with pre-negotiation for mobile-hierarchy city intelligent transportation system under semi-honest model is proposed.

Keyword—Attribute-based handshake; Private set intersection; Intelligent transportation system; Wireless sensor network; Attribute Encryption

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