Survey on LEACH-based Security Protocols

Triana Mugia Rahayu, Sang-Gon Lee*, Hoon-Jae Lee

Departement of Ubiquitous IT
Division of Computer and Information Engineering
Dongseo University
Busan, Korea

gia.sutriadi@gmail.com, nok60@dongseo.ac.kr, hjlee@dongseo.ac.kr
*Corresponding author

Abstract— **Energy efficiency is one of the major concerns in designing protocols for WSNs. One of the energy-efficient communication protocols for this network is LEACH that works on cluster-based homogeneous WSNs. Though LEACH is energy-efficient but it does not take security into account. Because WSNs are usually deployed in remote and hostile areas, security becomes a concern in designing a protocol. In this paper we present our security analysis of five security protocols that have been proposed to strengthen LEACH protocols. Those protocols are SLEACH, SecLEACH, SC-LEACH, Armor LEACH and MS-LEACH.**

Keyword— **Security analysis, WSN, LEACH, SLEACH, SecLEACH, SC-LEACH, Armor-LEACH, MS-LEACH.**

Triana Mugia Rahayu received her B. Eng. degree in Electrical Engineering from Petra Christian University, Indonesia, in 2011. She is now pursuing her master degree in Department of Ubiquitous IT, Division of Computer and Information Engineering, Dongseo University. Her current research area includes security for wireless sensor network.

Sang-Gon Lee received his B. Eng., M. Eng., and Ph.D degrees in Electronics Engineering from Kyungpook National University, Daegu, Rep. of Korea, in 1986, 1988 and 1993, respectively. He is a professor in Division of Computer & Information Engineering, Dongseo University. He was a visiting scholar at QUT, Australia, from August 2003 to July 2004 and at the University of Alabama at Huntsville, USA, from July 2012 to June 2013. His research areas include information security, network security, wireless mesh/sensor networks, and future Internet.

Hoon-Jae Lee received the B.S., M.S. and Ph.D. degree in Electrical Engineering from Kyungpook National University, Daegu, Rep. of Korea, in 1985, 1987 and 1998, respectively. He had been engaged in the research on cryptography and network security at Agency for Defense Development from 1987 to 1998. Since 2002 he has been working for Department of Computer Engineering of Dongseo University as an associate professor, and now he is a full professor. His current research interests are security communication system, side-channel attack, USN & RFID security. He is a member of the Korea Institute of Information Security and Cryptology, IEEE Computer Society, IEEE Information Theory Society and etc.