Survey on Security in Internet of things: state of the art and challenges

Mangal Sain, Young Jin Kang, Hoon Jae Lee

Department of Computer Engineering, Dongseo University, Busan, South Korea

mangalsain1@gmail.com, rkddudwls55@gmail.com, hjlee@dongseo.ac.kr

Abstract— **The Internet of Things (IoT) refers to the physical devices that are embedded with Internet, electronics, software, sensors, actuators, and network connectivity. This includes many different systems, for instance, healthcare, wellbeing, smart home, building, smart meters, and so on. The Internet-based technical architecture, IP-based communication protocols, and technologies are facilitating the exchange of smart object services over the insecure channels, therefore, security and privacy of the involved stakeholder is the prime concern. In this paper we analyse available IoT security in three forms: (i) security in communication, (ii) security at application interface, and (iii) data security. This paper reviews the current IoT technologies, approaches and models and finds the security gap in existing communication technologies, application interfaces, and data security. Another focus of the paper is to provide an overview of the related work in IoT, together with the open challenges and future research directions me".**

Keyword— **Internet of Things, Wireless sensor Networks, Security, Privacy, Trust**

Mangal Sain received the M.Sc. degree in computer application from India in 2003 and the Ph.D. degree in computer science in 2011. Since 2012, he has been an Assistant Professor with the Department of Computer Engineering, Dongseo University, South Korea. His research interest includes wireless sensor network, cloud computing, Internet of Things, embedded systems, and middleware. He has authored over 30 international publications including journals and international conferences. He is a member of TIIS and a TPC member in several international conferences

Young Jin Kang

2013: BS at Dongseo University, Republic of Korea
2015: MS at Dongseo University, Republic of Korea
2015 ~ current: doctor´s course Dongseo University, Republic of Korea
Research Interests: Wireless Sensor Networks, Cryptography and Network Security, Side Channel Analysis

Hoon-Jae Lee received his BS, MS, and PhD. degrees in Electrical Engineering from Kyungpook National University, Daegu, South Korea, in 1985, 1987, and 1998, respectively. He is currently a professor in the Department of Information and Communication Engineering at Dongseo University. From 1987 to 1998, he was a research associate at the Agency for Defense Development (ADD). His current research interests include developing secure communication system, side-channel attack, and ubiquitous sensor network/radio frequency identification security.