



**University
of Victoria**

Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Applied Science

of

PREETHY WILSON

BTech (Cochin University of Science and Technology, 2012)

“Inter-Device Authentication Protocol for the Internet of Things”

Department of Electrical and Computer Engineering

Friday, May 12, 2017
1:30 P.M.
Engineering Office Wing
Room 230

Supervisory Committee:

Dr. Fayez Gebali, Department of Electrical and Computer Engineering, University of Victoria
(Supervisor)

Dr. Mihai Sima, Department of Electrical and Computer Engineering, UVic (Member)

External Examiner:

Dr. Alex Thomo, Department of Computer Science, UVic

Chair of Oral Examination:

Dr. Daniel German, Department of Computer Science, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

This thesis focuses on a Device-to-Device Mutual Authentication Protocol which is an essential component of communication in the Internet of Things (IoT). The protocol has been developed based on asymmetric cryptography to authenticate the devices in the network and for the devices to agree on a shared secret session key. To ensure the security of a communications session between the devices, session keys are changed frequently. The proposed scheme has been programmed in HLPSL, implemented and its efficiency verified using the AVISPA tool. The thesis also evaluates the protocol's security against attacks.