Final Project Report
(Executive Summary)
Form

I. Title of Proposed Project: IoT Open Innovation Platform

II. Project Leader:

Full name：	Boon Choong Foo
Institution：	MIMOS BHD
Address:	Technology Park Malaysia, 57000 Kuala Lumpur, Malaysia
Phone：	+603 8995 5037
E-mail:	cf.boon@mimos.my

III. Project Members:

Name	Position/Degree	Department, Institution, Country	Email Address
Boon Choong Foo	Senior Director	MIMOS BHD, Malaysia	cf.boon@mimos.my
Looi Chin Teong	Senior Staff	MIMOS BHD, Malaysia	ct.looi@mimos.my
Dr. Kiyoshi Hamaguchi	Director General	NICT, Japan	
Dr. Fumihide Kojima	Director	NICT, Japan	f-kojima@nict.go.jp
Dr. Thu Ngo-Quynh	Department Head	HUST, Vietnam	thunq@soict.hust.edu.vn
Dr. Dinh Van Dzung	Deputy Director	VNU, Vietnam	Dzung.dinh@vnu.edu.vn
Dr. Sun Sumei	Department Head	I2R, Singapore	sunsm@i2r.a-star.edu.sq

IV. Total Amount (US$):

Budget: USD 79,568.

V. Duration (6-36 Months):

36 months duration. Started in April 2016, ended in March 2019.

VI. Executive Summary

Introduction

The widespread usage of smart phones and smart devices in the network today has transformed the network into a connected web of smart devices. These devices are made smart by the applications developed to provide huge benefits and services to the users. This is the Internet of Things (IoT). To stay competitive and to be able to capture the potential IoT market, it is important to have the IoT platform and acceleration tools to facilitate the rapid development and adoption of IoT solutions for public and private markets, especially in new upcoming developing ASEAN countries.   A common platform would allow integration of data and services from different systems.

Development and Implementation

The first objective of the project is to provide a software enablement platform that is flexible and cost effective in the interest of research and development in IoT solutions for ASEAN. This objective is achieved with the development of an IoT application enablement platform on the cloud which is used to develop IoT applications. The second objective is to develop Proof of Concepts (POC) solutions using this software platform in rural, healthcare, environment and aquaculture solution segments. Supporting technology in device connectivity and management are also developed to support the aggregation of sensory data to the cloud platform. This is the third objective which is to develop sensors, devices and gateways solutions for POC applications.

The first version of IoT Open Innovation Platform software was completed in August, 2016 by MIMOS and made available to project partners HUST and VNU in September 2016. A training workshop on the software platform was provided to HUST and VNU in Hanoi on Sept 27-29, 2016. Proof of Concept solutions were suggested that would help demonstrate the purpose and objective of the research project. The software platform is hosted at MIMOS research center. The software platform was also made available on premise to assist in the development of devices and gateways. A site deployment of the solutions was desired but unfortunately due to resource issues and delays in getting the equipment, it was not feasible to deploy the solution at an actual site. An assessment of the IoT Open Innovation Platform's usability and capability was carried out.

HUST developed the BK-IoT platform to interface with the platform. Development of sensory and gateway systems for POC applications in the lab was completed in Q3, 2017. Version 2.0 (PaaS version) of the software platform developed by MIMOS was released in January 2018. This version was hosted on a PaaS platform in MIMOS.

Collaboration with a Malaysian company HomeGrown to provide aquaponics monitoring system for their aquaponics organic farm is ongoing. A second project also in progress, on using the ASEAN IVO IoT Hub to collect and analyse data on peat forests in Indonesia, Vietnam, Malaysia and Brunei. (NAPC: Networked ASEAN Peat Swamp Forest Communities)

Establishment of the ASEAN IVO IoT Hub at MIMOS, BITX Lab was completed in Q4, 2018. The IoT Hub provides complimentary cloud IoT platform services for ASEAN IVO members to use to develop IoT solutions.