ASEAN IVO Members

Total: 80

As of May 2023

Country	Organization	Abbreviation
Brunei	Universiti Brunei Darussalam	UBD
	Universiti Teknologi Brunei	UTB
Indonesia	Agency For The Assessment And Application Of Technology	BPPT
	Ministry of Communications and Information Technology	MCIT
	Telkom University	Tel-U
	Indonesian Institute of Sciences	LIPI
	Institute Technology Bandung	ITB
	Universitas Syiah Kuala	Unsyiah
	Universitas Muhammadiyah Yogyakarta	UMY
	Krida Wacana Christian University	KWCU
	Monash University, Indonesia	MUI
	Universitas Nusa Mandiri	UNM
Cambodia	National Institute of Posts, Telecommunications and Information and Communications Technology	NIPTICT
	Institute of Technology of Cambodia	ITC
Laos	Faculty of Engineering, National University of Laos	NUOL
	Technology, Computer and Electronic Institute, Ministry of Science and Technology	TCEI
Myanmar	University of Computer Studies, Yangon	UCSY
	University of Computer Studies, Mandalay	UCSM
	Computer University (Thaton)	Thaton
	Yangon Technological University	YTU
	Mandalay Technological University	MTU
	University of Technology (Yatanarpon Cyber City)	UTYCC
	University of Information Technology	UIT
Malaysia	MIMOS Berhad	MIMOS
	Universiti Teknologi Malaysia	UTM
	Universiti Putra Malaysia	UPM
	Universiti Sains Malaysia	USM
	Universiti Tunku Abdul Rahman	UTAR
	Multimedia University	MMU
	Universiti Malaysia Perlis	UniMAP
	University of Malaya	UM
	Universiti Tun Hussein Onn Malaysia	UTHM
	Universiti Teknologi PETRONAS	UTP
	Swinburne University of Technology Sarawak Campus	SUTS
	Curtin University	CUU
	Universiti Malaysia Pahang	UMP
	Universiti Kebangsaan Malaysia	UKM
	Universiti Malaysia Sarawak	UNIMAS
	Universiti Malaysia Kelantan	UMK
	Monash University Malaysia	MUM
	International Islamic University Malaysia	IIUM
	Universiti Malaysia Sabah	UMS
Philippines	Mapua University	MU
	Polytechnic University of the Philippines	PUP
	Advanced Science and Technology Institute, Department of Science and Technology	DOST-ASTI
	University of the Philippines, Diliman	UPD
	Central Luzon State University	CLSU
Singapore	Institute for Infocomm Research	I2R
	School of Humanities and Social Sciences, Nanyang Technological University	NTU
	Faculty of Engineering, National University of Singapore	NUS
	Singapore Advanced Research and Education Network	SINGAREN
	Singapore University of Technology and Design	SUTD
	University of Glasgow Singapore	UGS
Thailand	Chiang Mai University	CMU
	Chulalongkorn University	CU
	King Mongkut's Institute of Technology Ladkrabang	KMITL
	National Electronics and Computer Technology Center	NECTEC
	National Institute of Metrology	NIMT
	Thai-Nichi Institute of Technology	TNI
	Office of Information Technology Administration for Education Development, Commission on Higher Education	UniNet
	King Mongkut's University of Technology Thonburi	KMUTT
	Thailand Institute of Scientific and Technological Research	TISTR
	Prince of Songkla University	PSU
	Asian Institute of Technology	AIT
	Khon Kaen University	KKU
Vietnam	Hanoi University of Science and Technology	HUST
	Vietnamese Academy of Science and Technology, Institute of Information Technology	IOIT
	Posts and Telecommunications Institute of Technology	PTIT
	Vietnam National University, International Francophone Institute	VNU-IFI
	Vietnam National University, Information Technology Institute	VNU-ITI
	Vietnam National University, University of Engineering & Technology	VNU-UET
	The University of Danang, Danang University of Science and Technology	DUT
	Vietnam National University – Ho Chi Minh City, University of Information Technology	UIT-HCM
	Le Quy Don Technical University	LQDTU
	Nha Trang University	NTU
	VNU University of Science	VNU-HUS
	Saigon University	SGU
Japan	National Institute of Information and Communications Technology	NICT
	NEC Solution Innovator	NES
	Tokyo University	TU

Steering Committee Members

As of May 2023

Country	Organization	Name	Title
Brunei	UBD	Assoc. Prof Dr Abby Tan Chee Hong	Assistant Professor, Faculty of Science and Director, Institute of Applied Data Analytics
	UTB	Assoc. Prof. Dr. Somnuk Phon-Amnuaisuk	Director, Centre for Innovative Engineering at UTB
Cambodia	NIPTICT	Dr. Sam Sethserey	Vice President
Indonesia	MCIT	Mrs. Woroindah Widiastuti	Senior Technology Advisor
	Tel-U	Ir. MSc. PhD. Ashwin Sasongko SASTROSUBROTO	Chairman of Telkom University Research Center for ICT Public and Business Policy
Laos	NUOL	Dr. Somphone Kanthavong	Vice Dean, Faculty of Engineering
Malaysia	MIMOS	Dr. Choong Khong Neng	Principal Researcher
	UTM	Prof. Ir. Dr. Abu Sahmah Bin Mohd Supa'at	Dean of Research, Innovative Engineering Research Alliance
Myanmar	UCSY	Prof. Dr. Myint Myint Sein (Ms.)	Pro-Rector
Philippines	MU	Prof. Alejandro Ballado	Dean, School of Electrical, Electronics and Computer Engineering
	DOST-ASTI	Franz A. de Leon, Ph.D.	Director IV
Singapore	I2R	Dr. Lye Kin Mun	Executive Director
	NUS	Prof. Aaron Thean	Dean of Faculty of Engineering
Thailand	CU	Dr. Widhyakorn Asdornwised	Assistant Professor, Department of Electrical Engineering
	NECTEC	Dr. Chai Wutiwiwatchai	Executive Director
Vietnam	PTIT	Assoc. Prof. Dr. Habil., Dr.-Ing. HOANG Dang Hai	Vice President
	VNU-UET	Prof. NGUYEN Thanh Thuy	Professor, Director of AI Key Lab
Japan	NICT	Dr. Hiroyuki Yano *	Vice President

*Steering Committee Chair

ASEAN IVO 2023 Projects

Project leader indicated in bold

1 Integrated Decision Support System for Non-Communicable Ocular Diseases using Machine Intelligence

Topic: ICT for Health and Welfare

Members: **UKM (MYS)**, ITC (KHM), ITB (IDN)

The primary target of this project is to develop an integrated cloud-based DSS for NCODs to detect anterior segment ocular diseases such as cataracts, glaucoma, pterygium, etc., using machine intelligence, cloud technology and an integrated system approach. The anterior segment photographed images (ASPIs) captured using a smartphone camera are then saved in cloud storage. The anterior segment corneal images are processed in the cloud processing platform, with the captured images, and their detection results can be accessed and validated by experts before sending a notification to users.

2 Research and development for precise positioning with Artificial Intelligence (AI) during ionospheric disturbances in low-latitude region in ASEAN

Topic: ICT for Environment Protection of Disaster Prevention

Members: **KMITL (THA)**, CU (THA), NUOL (LAO), IGP (VNM), ITC (KHM), LQDTU (VNM), CADT (KHM), NICT (JPN)

Ionospheric irregularities such as equatorial plasma bubbles (EPB) in low-latitude regions in ASEAN countries often lead to degradation in precise positioning and navigation. To detect irregularity various sensors and data are typically utilized such as ionosonde, GNSS receivers, VHF (Very High Frequency) radar and LEO (Low Earth Orbit) satellite data. In addition, forecasting and mitigation of EPB effects on modern technology is needed for society at large. Importantly, as Solar cycle 25 is ongoing and will reach the solar maximum in 2024 or 2025, it is imperative to acquire more data and develop the warning capability.

3 Spoof Detection for Automatic Speaker Verification

Topic: ICT for Smart and Secure Community

Members: **NECTEC (THA)**, JAIST (JPN), SIIT (THA), CU (THA), UCSY (MMR), NICT (JPN), UBD (BRN)

The objectives of this project are listed as follows: (1) To explore and investigate significant of speech features for spoof detection, (2) To optimize percentage of voice and non-voice segments in features used in spoofing detection, (3) To investigate pathological feature for spoof detection, (4) To minimize detection error, (5) To improve an accuracy of ASV, and (6) To study multi-lingual spoof detection.

4 Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis

Topic: ICT Related Technologies and Applications

Members: **KKU (THA)**, CMU (THA), Mittaphab Hospital (LAO), NICT (JPN)

The diagnosis of CCA is based on radiology and histopathological confirmation, which is high cost and time-consuming. Several biomarkers of CCA have been discovered in animal model and successfully verified in the patient for clinical application. Biosensors platform using the technology of photonic and electrochemical detectors allows for a high degree of integration that facilitates from the device and sensor research laboratories into the hands of the analytical chemistry and clinical medicine communities for large-scale detection in various samples such as urine, faeces and sera. We hypothesize that using biosensing platforms to discover trace amounts of CCA biomarker in animal models could be translated into clinical application in patients. The Faculty of Medicine, KKU, Thailand (MD-KKU) signed the MOU with The National Institute of Information and Communications Technology, Japan (NICT) in 2019 and agree to enter into a formal collaborative agreement. In order to sustain this, KKU has intention to develop the different optical and electrochemical sensing technologies in CCA diagnosis.

5 Artificial Intelligence Powered Comprehensive Cyber-Security for Smart Healthcare Systems (AIPOSH)

Topic: ICT for a Secure and Smart Community

Members: **LQDTU (VNM)**, PSU (THA), CADT (KHM), NTU (SGP), UEC (JPN), NICT (JPN)

This project provides a comprehensive cyber-security platform with AI powered hardware-software oriented solutions for IoT-based smart healthcare systems, toward a technology roadmap for ASEAN countries in the field. Also, ML/DL techniques developed in this project to solve emerging cyber-security issues could open up new AI powered applications and create new added values for products as well as the society.

6 An Organic Food Tracking by using Blockchain in Lao PDR

Topic: ICT for Food

Members: **NUOL (LAO)**, CU (THA), UTB (BRN), KMITL (THA)

Organic food's supply chain issues are becoming more global over time. The dependence on trust in third party operations, ethics in production, transportation, to name a few areas, is evident. Stamps and documentation, IT-systems, certificates, food origin, mixing of food, the use of chemicals etc. are areas where fraud or ignorance can create problems on a large scale. At worst, it can cause health problems, even deaths. ICT for food has mitigated some of these challenges but integration costs remain high. There is still a lot of undetected fraud, pesticides, and transparency levels are insufficient to comply with the current and future demands of consumers and other vendors. A new area of technology, the blockchain, can potentially solve many of the remaining problems for food transparency and control. This research focuses on organic food tracking by using blockchain.

Figures for Active Projects (2018-2023)

Start date (Fiscal Year)		Project Title	Duration (years)	Countries	Members	Researchers
2023	1	Integrated Decision Support System for Non-Communicable Ocular Diseases using Machine Intelligence	1.5	3	3	8
	2	Research and development for precise positioning with Artificial Intelligence (AI) during ionospheric disturbances in low-latitude region in ASEAN	2	5	9	28
	3	Spoof Detection for Automatic Speaker Verification	2	4	7	19
	4	Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis	2	3	4	14
	5	Artificial Intelligence Powered Comprehensive Cyber-Security for Smart Healthcare Systems (AIPOSH)	2	5	6	17
	6	An Organic Food Tracking by using Blockchain in Lao PDR	2	3	4	15
		Subtotal			**33**	**103**
2022	1	Visual IoT Network for Environment Protection and Disaster Prevention	2	5	10	31
	2	Agricultural IoT based on Edge Computing	2	4	5	25
	3	P2EI-WEALTH (Physiological and Psychological Edge Intelligence WEArable LoRa HealTH) System for Remote Indigenous Community and Disaster Recovery Operations	1.5	2	3	8
	4	AI-Based Real Time Analysis and Control of the Monitoring on the Growth of Freshwater Prawn Using Video Image Processing from Underwater Drone	1	4	7	10
	5	AI-Based Real Time Analysis and Control of the Monitoring on the Growth of Freshwater Prawn Using Video Image Processing from Underwater Drone	2	4	6	24
		Subtotal			**31**	**98**
2021	1	2.5D Technology-based Integrated Antenna Array mm-Wave System For Non-Invasive Food Safety Scanner (TIAS)	2	6	9	15
	2	Resilient Artificial Intelligence of Things (AIoT) Green Energy System with Real-time Solution for Effective Aquaculture (REAS-SEA)	2	6	10	22
	3	IoT System for Water Reuse in Developing Cities	2	4	4	8
	4	GNSS and Ionospheric Data Products for Disaster Prevention and Aviation in Magnetic Low-Latitude Regions (Phase II)	2	5	7	23
		Subtotal			**33**	**78**

Total members: 251
Total researchers: 545

Figures for Completed Projects (2016-2020)

Start date (Fiscal Year)		Project Title	Duration (years)	Countries	Members	Researchers
2020	1	Context-Aware Disaster Mitigation using Mobile Edge Computing and Wireless Mesh Network	3	4	5	18
	2	Reusable, Sharable, and Transferable Smart Data Platform for Collaborative Development of Data-driven Smart Cities	2	5	5	12
	3	ASEAN-Wide Cyber-Security Research Testbed	3	5	6	13
	4	An Energy Efficient, Self-Sustainable, and Long Range IoT System for Drought Monitoring and Early Warning	1.8	4	9	14
		Subtotal			**14**	**26**
2019	1	Relay Station Network Based on Low-power Wide-area Network (LPWAN) Technologies for Disaster Management	3	6	9	23
	2	FarmTab: Precision Agriculture System using Internet of Things and Artificial Intelligence for Urban Farming	2	4	6	8
	3	Prevention of 4 Disasters and Their Single Recovery Networks based on Internet-of-Things with Airborne Capability (PATRIOT-41R-Net)	3	5	5	6
	4	GNSS and Ionospheric Data Products for Disaster Prevention and Aviation in Magnetic Low-Latitude Regions	2	4	6	9
		Subtotal			**32**	**55**
2018	1	Event Analysis: Applications of computer vision and AI in smart tourism industry	2	7	8	8
	2	Cyber-Attack Detection and Information Security for Industry 4.0	3	3	3	11
	3	Scalable Distributed IoT Framework based on Mobile Robot Technology for High Performance Greenhouse Plants	2.5	3	4	6
	4	Smart Aquaculture Quality Monitoring (AQM) System with Internet of Things (IoT)	2	4	7	7
	5	NAPC: Networked ASEAN Peat Swamp Forest Communities	2	5	7	15
	6	A mesh-topological, low-power wireless network platform for a smart watering system	2	5	6	20
		Subtotal			**31**	**56**
2017	1	A Hybrid Security Framework for IoT Networks	2	4	6	9
	2	Smart Lighting for Internet of Things and Smart Homes	3	3	6	9
	3	IoT System for Public Health and Safety Monitoring with Ubiquitous Location Tracking	2	4	5	12
	4	Evapotranspiration (ET)-Based Irrigation System with Internet of Things (IoT) Integration for Smart Farming Application Addressing the ASEAN Impending Water Crisis	3	4	5	9
	5	Study and evaluation of heterogeneous network for smart community and smart city applications	2	3	4	10
		Subtotal			**26**	**49**
2016	1	Open Collaboration for Developing and Using Asian Language Treebank	3	6	6	14
	2	ASEAN Language Speech Translation thru' U-STAR	3	7	8	17
	3	Mobile IoT	2	4	4	6
	4	ASEAN forum for Software Defined System on Disaster Mitigation and Smart Cities	3	7	10	12
	5	IoT Open Innovation Platform	3	4	5	6
	6	Cambodia NerveNet Field Testing	3	3	3	6
	7	TV White Space (TVWS) Experimental for Application in Remote Area	2	3	4	8
	8	Research and development on short distance communication and imaging for applications in ASEAN region	3	5	11	13
		Subtotal			**51**	**82**