ASEAN IVO Members

Total: 95   As of May 2024

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
	University Padjadjaran	UNPAD
	Institut Teknologi Sepuluh Nopember	ITS
	Universitas Darussalam Gontor	UDG
	Universitas Pendidikan Ganesha	Undiksha
	IPB University (Bogor Agricultural University	IPB
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
	Visayas State University	VSU
	Mapúa Malayan Colleges Mindanao	Mapua-MCM
	Samar State University	SSU

Country	Organization	Abbreviation
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
	Thuyloi University	TLU
	The University of Danag - Vietnam-Korea University of Information and Communication Technology	VKU
	Thai Nguyen University of Information and Communication Technology	ICTU
	VinUniversity	VinU
	Ho Chi Minh City Open University	HCMCOU
	International School - Vietnam National University, Hanoi	IS-VNU
Japan	National Institute of Information and Communications Technology	NICT
	NEC Solution Innovator	NES
	Tokyo University	TU
	University of Electro-Communications	UEC

Steering Committee Members

Country	Organization	Name	Title
Brunei	UBD	Dr. Haji Abdul Hanif bin Dato Paduka Haji Mahadi	Director of Centre for Advanced Material and Energy Sciences
	UTB	Dr. Mohamad Saiful bin Haji Omarmar	Assistant Vice-Chancellor (External and Industry Relations)
Cambodia	CADT	Dr. Cheab Sovuthy	Senior Researcher and Director of Makerspace
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	Assistant. Prof. Dr Vimontha Khieovongphachanh	Deputy head of Computer Engineering and Information Technology department, Faculty of Engineering
Malaysia	MIMOS	Dr. Choong Khong Neng	Principal Researcher
	UTM	Prof. Dr. Shamsul Bin Sahibuddin	Deputy Vice Chancellor (Student Affairs)
Myanmar	UCSY	Prof. Dr. Khin Mar Soe (Ms.)	Head of faculty of computer science, Head of international relations department
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. Sumei Sun	Acting Executive Director
	NUS	Prof. Kie Eong TEO	Professor and Acting Dean of College of Design and Engineering
Thailand	CU	Asst. Prof. Dr. Supavadee Aramvith	Assistant Professor, Associate Dept Head (International Network) Head, Multimedia Data Analytics and Processing Research Unit
	NECTEC	Dr. Chai Wutiwiwatchai	Executive Director
Vietnam	PTIT	Assoc. Prof. Dr. Habil., Dr.-Ing. HOANG Dang Hai	Deputy Editor-in-Chief of PTIT's Journal
	VNU-UET	Prof. NGUYEN Thanh Thuy	Professor, Director of AI Key Lab
Japan	NICT	Dr. Hiroyuki Yano *	Vice President *Steering Committee Chair

ASEAN IVO 2024 Projects

Project leader indicated in bold

1 | Cyber to Real World Integrated Testbed for Dam Safety Management and Water Governance System

Topic: ICT for Environment Protection and Disaster Prevention

Members: **NUOL (LAO)**, NECTEC (THA), IDRI (KHM), UCSY (MMR), Mapua U (PHL), NICT (JPN)

"Cyber to Real World Integrated Testbed for Dam Safety Management and Water Governance System in ASEAN Countries" aims to bridge the gap between digital simulations and real-world implementations. Building on existing initiatives like Thailand's Dam Safety Remote Monitoring System (DS-RMS), the project seeks to enhance dam safety protocols and water governance frameworks across ASEAN nations. By leveraging advanced cyber-physical systems (CPS) technologies, the nationwide ICT testbed infrastructure and international High-Speed R&D Network Testbed will be used as a tool to connect to each country for facilitates comprehensive testing, validation, and optimization of dam safety measures.

2 | AI-Driven Smart Horticulture for Climate Sensitive Plant using Soil Analysis and Image Processing: A Tropical Perspective

Topic: ICT for Food

Members: **Multimedia U (MYS), it**UTB (BRN), NIA (KHM), MMU (MYS), NUOL (LAO)

The proposed project aims to study and develop an advanced energy-efficient smart greenhouse tailored for the diverse climate conditions of the ASEAN region for any variety of plan. With temperatures ranging from 21 to 40 degrees Celsius, this innovative greenhouse will incorporate cutting-edge internet-of-things (IoT) technologies and artificial intelligence (AI) to regulate temperature, humidity, and soil conditions, thus optimizing the cultivation of specific crops such as Vanilla (Malaysia), Chili (Brunei), and Lettuce (Cambodia). Four key research activities (as shown in figure) will be implemented by team members from 4 different ASEAN member countries.

3 | New Quantitative Imaging Markers to Predict Breast Cancer Risk in Women

Topic: ICT for Health and Welfare

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

Breast cancer is the most common cancer among women worldwide. As early-stage breast cancer is curable and early detection methods like screening mammography can improve overall survival, screening is generally available in many countries. Screening is generally offered to women over 50 because the risk assessment models while performing well at the population level, do not accurately predict risk at an individual level. Unlike many genetic biomarkers (e.g., BRCA1/2) and epidemiology factors, which are fixed numbers, radiographic image features or patterns in mammograms change as suspicious breast abnormalities start to develop in the breast. Thus, the Ultimate Goal of This Project is to develop new image feature analysis-based clinical markers to more accurately identify women who have a higher risk of developing breast cancer.

4 | SAqFeeder: Smart Aquafarm Feeder and Monitoring System in Highly Turbid Conditions

Topic: ICT for Food

Members: **ASTI (PHL)**, UTB (BRN), TUP (PHL), UTM (MYS), NICT (JPN)

In the realm of fish and aquaculture monitoring systems, tools are needed to restore highly turbid images to monitor aquafarms and optimize its feeding process effectively. SAqFeeder aims to optimize the feeding process by developing an intelligent feeding system using computer vision, auditory filtering, and automated actuation, addressing the challenges of water turbidity. The project, spanning from 1 April 2024 to 31 March 2026, aims to (a) design a solar-powered actuation system to easily visualize the feeds from the feeding tray, (b) to regularly estimate the quantity of remaining feeds using computer vision, (c) to develop a dashboard to monitor the health status of the farm, (d) to forecast the best time to feed the aquafarm based on the data collected, and (e) to automate the feeding system. Two small-scale aquafarm beneficiaries are from the Philippines and Brunei.

5 | Coastal Erosion Monitoring Platform Based on Wireless Sensor Networks and 3D Point Clouds from Airborne LiDAR

Topic: ICT for Environment Protection and Disaster Prevention

Members: **NECTEC (THA)**, UTM (MYS), ITENAS (IDN)

In this project, we propose a platform for collecting, monitoring, and processing environmental data in coastal areas. The data, sourced from wireless network sensors, images from video monitoring systems, 3D point clouds, and weather stations, will be analyzed and integrated using AI algorithms. This platform is designed to support decision-making by providing recommendations or predictions based on data analysis.

Figures for ASEAN IVO Projects (2016-2024)

Start date (Fiscal Year)		Project Title	Duration (years)	Countries	Members	Researchers	Ongoing or Completed
2024	1	Cyber to Real World Integrated Testbed for Dam Safety Management and Water Governance System	2	6	6	17	O
	2	AI-driven smart horticulture for climate sensitive plant using soil analysis and image processing: a tropical perspective	2	4	5	12	O
	3	New Quantitative Imaging Markers based on Full-Field Digital Mammography Image Features and Other Clinical Risk Factors to Predict Breast Cancer Risk in Women	1.3	2	3	3	O
	4	SAqFeeder: Smart Aquafarm Feeder and Monitoring System in Highly Turbid Conditions	2	4	7	22	O
	5	Coastal Erosion Monitoring Platform Based on Wireless Sensor Networks and 3D Point Clouds from Airborne LiDAR	2	3	3	15	O
		Subtotal			**24**	**69**	
2023	1	Integrated Decision Support System for Non-Communicable Ocular Diseases using Machine Intelligence	1.5	3	3	10	O
	2	Research and development for precise positioning with Artificial Intelligence (AI) during ionospheric disturbances in low-latitude region in ASEAN	2	5	9	29	O
	3	Spoof Detection for Automatic Speaker Verification	2	4	8	26	O
	4	Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis	2	3	4	24	O
	5	Artificial Intelligence Powered Comprehensive Cyber-Security for Smart Healthcare Systems (AIPOSH)	2	5	6	17	O
	6	An Organic Food Tracking by using Blockchain in Lao PDR	2	3	4	15	O
		Subtotal			**33**	**103**	
2022	1	Visual IoT Network for Environment Protection and Disaster Prevention	2	5	10	25	O
	2	Agricultural IoT based on Edge Computing	2	4	5	25	O
	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	O
	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	11	C
	5	An IoT-based Data Collection and Analytics Framework using Bluetooth Proximity Beacons	2	4	6	24	O
		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	C
	2	Resilient Artificial Intelligence of Things (AIoT) Green Energy System with Real-time Solution for Effective Aquaculture (REAS-SEA)	2	6	10	22	C
	3	IoT System for Water Reuse in Developing Cities	2	4	4	8	C
	4	GNSS and Ionospheric Data Products for Disaster Prevention and Aviation in Magnetic Low-Latitude Regions (Phase II)	2	5	7	23	C
		Subtotal			**33**	**78**	

Total members: 275
Total researchers: 616

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