

# About ASEAN IVO

“ICT Virtual Organization of ASEAN Institutes and NICT” (ASEAN IVO) is a global alliance of institutes and universities in the ASEAN region and Japan focused on ICT research and development.

The mission of ASEAN IVO is to seek and identify strategic ICT research areas in the ASEAN region and support collaborative projects in them, promoting international alliance amongst universities and research institutes in the ASEAN region and Japan.

Collaborative projects aim to address common challenges such as communication limitations in rural areas and disaster situations, language barriers, network security, energy, infrastructure, agriculture etc.

The idea for ASEAN IVO was conceived at the “International Roundtable on ICT R&D Collaboration in the ASEAN Region” held in 2013 by NICT. A proposal to establish the Organization was brought by NICT and approved at the second Round Table in 2015. ASEAN IVO began in 2015 with 23 members from 8 ASEAN countries plus Japan. Now membership includes all ASEAN countries, with 80 members as of April 2023 and rising.

## Steering Committee

A Steering Committee formed from the ASEAN IVO member institutes and NICT, with one or two representatives for each ASEAN country. The Steering Committee is responsible for overseeing ASEAN IVO activities. Meetings are typically held twice a year.

The Steering Committee: Selects proposals for collaborative projects, reviews ongoing projects and provides feedbacks promotes ASEAN IVO with relevant ministries and organizations and identifies sources of support for ASEAN IVO activities, and decides overall ASEAN IVO policy and administrative matters.



Picture of the ASEAN IVO SC Meeting in Ho Chi Minh, Vietnam, March 2024

## Membership

ASEAN IVO members can apply to make presentations on their research activities at the ASEAN IVO Forum, with the possibility of receiving support for travel expenses. Additionally, member universities and public research institutes from ASEAN countries are eligible to receive financial support for collaborative projects.

Membership is open to universities, institutes and companies located in the ASEAN region. Depending on the type of organization, the following conditions may apply:

1. Organizations applying for membership must be involved in research and development in the field of ICT.
2. Organizations from non-ICT sectors can be accepted as members, if their aim in joining is ICT development for their field.
3. Private companies are welcome to apply for membership if the company applying provides matching funds for ASEAN IVO joint projects. No financial support will be provided to the company.

ASEAN IVO Secretariat:

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Homepage:

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Website

Social media:



@ASEANIVO



@aseanivo2266

# ASEAN IVO

ICT Virtual Organization  
of ASEAN Institutes and NICT

2024.04



## For More Information

# Research Collaboration

New collaborative projects are selected for support through an annual call for proposals. All projects are required to include participant institutions from at least two different ASEAN countries. Proposals from all technical fields are welcome and are evaluated on the potential benefit of output.

ASEAN IVO supports research collaboration by:

1. Developing common technologies in broad areas based on common considerations
2. Forming multinational collaborative projects for research, field trials, etc. to address common regional needs
3. Promoting collaborative research through researcher exchange
4. Sharing knowledge through international joint workshops and other academic events

# ASEAN IVO Forum

The ASEAN IVO Forum is an annual event providing an opportunity for all ASEAN IVO members to exchange ideas, discuss R&D topics and coordinate projects. Each year, the ideas exchanged lead to new project teams forming in time for the following Call for Proposals. The Forum is hosted in a different ASEAN country each year.

Past Forums:

- 2023 November 15 - 16 Vientiane, Laos
- 2022 November 29 - 30, Bangkok, Thailand
- 2021 November 18, Online Video Conference
- 2020 November 25 - January 11, Online
- 2019 November 20-21, Manila, The Philippines



Pictures from ASEAN IVO Forum 2023 in Vientiane

## Some ASEAN IVO Projects



### An Energy Efficient, Self-Sustainable, and Long Range IoT System for Drought Monitoring and Early Warning (2020)

Leader: LQDTU (VNM)

Members: LQDTU (VNM), UEC (JPN), KIT (JPN), KMUTT (THA), KMITL (THA), NAWAPI (VNM), MDH (SWE), UTC (VNM), PTIT (VNM)

This project was to develop a low cost, real-time drought monitoring and early-warning system based on Internet of Things (IoT) for river basin regions of Vietnam. The developed system combined the advanced technologies of Beat sensor, LoRa, cloud computing, data analysis, RF energy harvesting and web/Android based application to provide a smart environment monitoring platform, which can provide timely warning to reduce the impact of drought in terms of both economic loss and human health.



### IoT System for Water Reuse in Developing Cities (2021)

Leader: USM (MYS)

Members: USM (MYS), TDTU (VNM), NICT (JPN)

This project was to develop real-time analysis and monitoring of water quality to preserve the water reuse system and the safety of vulnerable citizens. Moreover, data was collected through IoT to improve water management in cities. The major aim of this project was to design and develop a system which can perform wastewater treatment, water quality analysis and monitoring, and critical water reuse data collection to improve household water use and conservation.



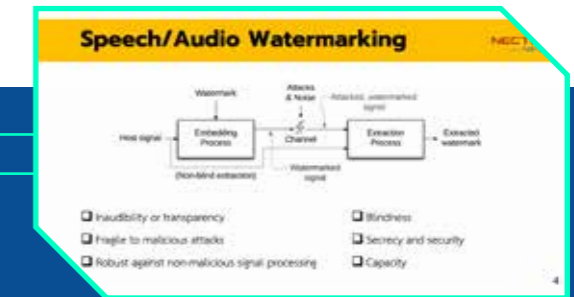
### An IoT-based Data Collection and Analytics Framework using Bluetooth Proximity Beacons (2022)

Leader: UTM (MYS)

Members: UTM (MYS), UGS (SNG), UTB (BRN), UB (IDN), USM (MYS), UTAR (MYS)

Many bus operators in developing countries do not have a solution in place to provide an accurate estimated time of arrival (ETA). Without ETA information, it is difficult for the public to plan their journey effectively.

This project proposes an innovative IoT solution to track buses to collect transportation data. It uses Bluetooth Low Energy (BLE) proximity beacons to track the journey of a bus. BLE detection devices are installed at selected bus stops along the bus route to detect the arrival of buses. Collected data is also used to build deep-learning models to learn about the journey duration during peak and non-peak periods.



### Spoof Detection for Automatic Speaker Verification (2023)

Leader: NECTEC (THA)

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

The human voice is a unique bimoetic identifier. It has been successfully used in automatic speaker verification (ASV). However, ASV systems are currently vulnerable to spoofing attacks in which someone disguises themselves as another and illegitimately accesses a secure system. Hence, countermeasures are necessary.

This project will explore and investigate significant speech features for spoof detection, optimize percentage of voice and non-voice segments in features used in spoofing detection, investigate pathological feature for spoof detection, minimize detection error, improve an accuracy of ASV, and to study multi-lingual spoof detection.