ICT Virtual Organization of ASEAN Institutes and NICT (ASEAN IVO)

Visual IoT Network for Environment Protection and Disaster Prevention
[Project Meeting and Visual IoT Workshop]
Report Form

I. Organizer:

Name:	Dr. Ken T. Murata
Position:	Research Executive Director
Institution:	NICT

II. Objective:

1. To update the progress and review current activities in Thailand, Philippines, Lao PDR, Myanmar, and Japan.
2. (Visual IoT workshop) To learn from NICT about the Visual IoT system so that each country can apply the system to match their applications appropriately.
3. To discuss on the design of the tailor-made Visual IoT systems to be applied to all systems proposed by the members (NECTEC, Mapua University, and National University of Laos).
4. To discuss on the action plan and budget plan for future activities in each country.

III. Schedule:

Date: 19 – 21 December 2022
Venue: NICT Headquarters, 4-2-1 Nukui-Kitamachi, Tokyo 184-8795, Japan

Program Agenda:

19 Dec	09:00 – 12:00	Project progress updates by NECTEC, Mapua University, NUOL, UCSY, and NICT (30-40 mins each)
	12:00 – 13:30	Working Lunch
	13:30 – 16:30	Visual IoT Training/Workshop 1 (Introduction)
20 Dec	09:00 – 12:00	Visual IoT Training/Workshop 2 (Practicing) (Hand-on workshop how to prepare and install visual IoT, how to set up and configure the visual IoT system, how to do maintenance and troubleshoot the visual IoT system, and in the afternoon, discuss and conclude the specification of the targeted visual IoT in each country/location)
	12:00 – 13:30	Working Lunch
	13:30 – 16:30	Discussion on the design of the tailor-made Visual IoT system for each country (Thailand, Philippines, Lao PDR)
21 Dec	09:00 – 12:00	Visual IoT Training/Workshop 3 (Troubleshooting)

		(hand-on workshop, how to connect and upload the images to visual IoT server, how to connect and download the images from the visual IoT server, how to use image processing/ machine learning tools, how to re upload the results to the server, how to create the visualization system)
	12:00 – 13:30	Working Lunch
	13:30 – 16:30	Discussion on the action plan and budget plan for future activities in each country

IV. Participant List & Itinerary:

No.	Name	Organization	Itinerary
1	Dr. Ken T. Murata	NICT	NA
2	Dr. Phoummixay Siharath	NOUL	17/12/2022 (in) 23/12/2022 (out)
3	Dr. Jennifer C. Dela Cruz	Mapua University	18/12/2022 (in) 22/12/2022 (out)
4	Dr. Kanokvate Tungpimolrut	NECTEC	18/12/2022 (in) 22/12/2022 (out)
5	Dr. Jessada Karnjana	NECTEC	18/12/2022 (in) 22/12/2022 (out)
6	Dr. Thin Lai Lai Thein	UCSY	NA (Online)
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V. Summary of the activities corresponding to the objectives

Dr. Ken T. Murata joined the meeting online because he had been infected with COVID-19 and had symptoms on 19 December 2022. In order to demonstrate the system and train the participants, Dr. Murata assigned Dr. Murakami to instruct the participants on-site instead of him. And he guided all steps remotely. So, the activities during the workshop were done as planned and can be summarized as follows.

(1) To update the progress and review current activities in Thailand, Philippines, Lao PDR, Myanmar, and Japan.
   a. Dr. Kanokvate and Dr. Jessada briefed the planned activities, the scope of work, the output of the project, and the budget plan to all members. The NECTEC team also reported the current progress, the field survey, and a plan to construct a dataset for smoke detection. The experiments for dataset construction will be done around the first quarter of 2023. An example of locations for the experiments is shown below.

Example of experimental sites in Thailand

b. Dr. Jennifer reported a plan for applying the visual IoT system for flood monitoring. The system is planned to be installed at Mapua University. It will monitor the area in front of the main gate, which is a target when heavy rain occurs.


Example of experimental sites in Philippines

c. Dr. Phoummixay reported a plan for applying the system for water level detection and smoke detection in Lao PDR.


Example of experimental sites in Laos

d. Dr. Murata explained the visual IoT system developed by NICT, including system requirements and its applications. He also discussed the possibilities of applying the visual IoT system to the applications proposed by other project members.
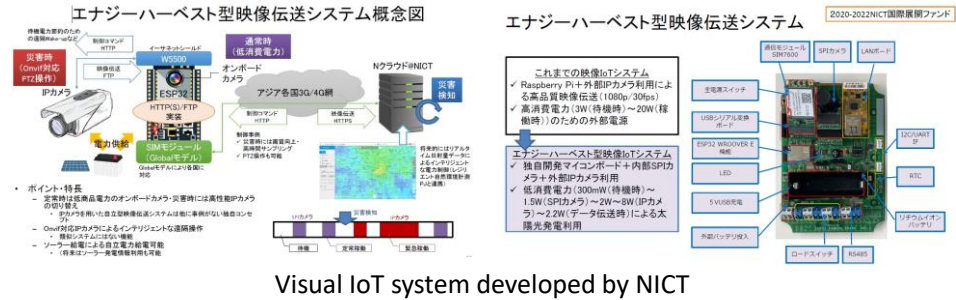
Visual IoT system developed by NICT

e. Dr. Thin Lai Lai Thein and her students updated recent activities in Myanmar and a plan to implement forest-fire detection in Nay Pyi Taw.
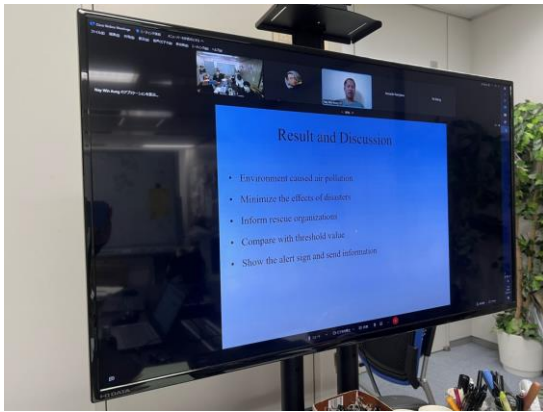
Hybrid Project Meeting at NICT HQ

(2) (Visual IoT workshop) To learn from NICT about the Visual IoT system so that each country can apply the system to match their applications appropriately.

a. Dr. Murata and Dr. Murakami explained how the system works step-by-step. Then, they trained the participants on downloading, installing, and setting up HpVT to connect the camera to the server. During the workshop, the participants work with the actual system to

gain a deep understanding of everything from downloading to managing the system to work correctly, i.e., to transmit images from a camera transmitter to a receiver.


Visual IoT Workshop at NICT HQ

(3) To discuss on the design of the tailor-made Visual IoT systems to be applied to all systems proposed by the members (NECTEC, Mapua University, and National University of Laos).

(4) To discuss on the action plan and budget plan for future activities in each country.

    a. The conclusion concerning the last to objectives is summarized as follows. After the workshop at NICT, each party will finalize the requirements in each country and summarize the equipment needed to be purchased. In the first stage, NECTEC will develop a trailer-made system as a prototype for other parties. Also, NECTEC will conduct experiments to construct a dataset for training smoke detection models. After that, the system will be developed and installed in each country to collect more data. The last phase of this project will be dedicated to data analysis and model improvement.

VI. Others
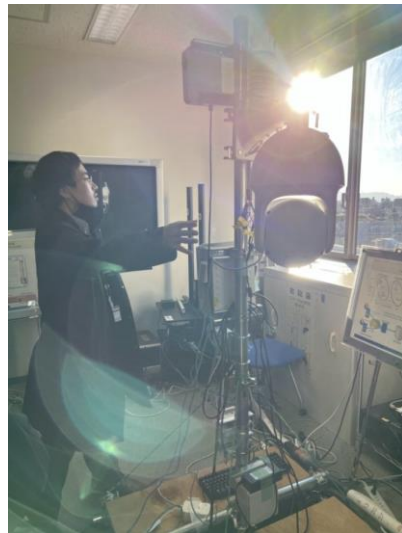
NICT Visit (Other projects related to Visual IoT and Solar-powered system)
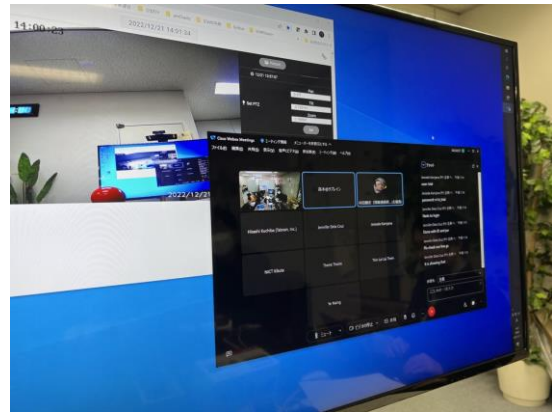
Online presentation from a private company that works with Dr. Murata's team