

Appendix 4.2

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

I. Organizer:

Name:	Mr. Kanokvate Tungpimolrut			
Position:	Research Fellow			
Institution:	National Electronics and Computer Technology Center			

II. Program:

Date: 25 – 27 February 2025 Venue: Novotel Chiangmai Nimmarn Journeyhub Hotel, Chiang Mai, Thailand

Program Agenda:

25 Feb	08:00 - 12:30	Venue: Installed sites of Visual IoT System		
Symposium		- Visit the sites (5 locations)		
	12:30 - 13:30	Working lunch		
	13:30 - 16:00	Venue: Hotel's meeting room		
		 The NECTEC team will present the progress and future plans for implementation in Thailand. A discussion with participants, focusing especially on comments and suggestions from NICT and other project members, as well as feedback and concerns from end users in each 		
		sub-district.		
26 Feb	09:00 - 12:00	 Venue: Hotel's meeting room NICT team will present the Visual IoT System, its use cases in Japan and other countries, and the newly developed Visual IoT System. A discussion with participants, especially focusing on the possibilities and action plans for using the new Visual IoT System. Working lunch 		
Symposium				
	12:00 - 13:30			
	13:30 - 16:00	 Venue: Hotel's meeting room MU team will present the progress and future plans for implementation in the Philippines. NUOL team will present the progress and future plans for implementation in Lao PDR. UCSY team will present the progress and future 		



		plans for implementation in Myanmar.		
		- Open discussion		
27 Feb	09:00 - 12:00	Venue: Hotel's meeting room		
		Share information on the current status and future		
Meeting		plans of each member country:		
		- NECTEC team		
		- UCSY team		
		- NUOL team		
		- MU team		
		- NICT team		
	12:00 - 13:30	Working lunch		
	13:30 - 16:00	Venue: Hotel's meeting room		
		Conclude the outcomes of the symposium and		
		reconfirm the future plans.		

III. Participants:

No.	Name	Organization	Itinerary
1	Dr. Kanokvate Tungpimolrut	NECTEC	24/2/2025 (in)
			28/2/2025 (out)
2	Dr. Jessada Karnjana	NECTEC	24/2/2025 (in)
			28/2/2025 (out)
3	Dr. Thin Lai Lai Thein	UCSY	24/2/2025 (in)
			28/2/2025 (out)
4	Ms. Zin May Oo	UCSY	24/2/2025 (in)
			28/2/2025 (out)
5	Mr. Somchay Vilaychaleun	NUOL	24/2/2025 (in)
			28/2/2025 (out)
6	Dr. Phoummixay Siharath	NUOL	24/2/2025 (in)
			28/2/2025 (out)
7	Dr. Ken T. Murata	NICT	24/2/2025 (in)
			28/2/2025 (out)
8	Dr. Kazutaka Kikuta	NICT	24/2/2025 (in)
			28/2/2025 (out)
9-11	Representatives of Choeng D	Chiang Mai	NA
	oi sub district		
12-13	Representatives of Pa Miang	Chiang Mai	NA
	sub district		
14	Representatives of Nong Yae	Chiang Mai	NA
	ng sub district		
15	Representatives of DDPM	Chiang Mai	NA
16-25	Representatives of CMU	Chiang Mai	NA
26	Dr. Jennifer Dela Cruz	MU	Online participation
27	Dr. Ramon G. Garcia	MU	Online participation



<u>**Remarks:**</u> Please see the name list of all participants including representatives of each sub-distri ct, Department of Disaster Prevention and Mitigation (DDPM) and Chiang Mai University (CMU) in another attached file.

IV. Summary of the activities corresponding to the objectives

In this 3-day symposium and meeting, the following three objectives were set. The meeting was successfully completed as scheduled. A summary of each meeting is shown below.

Objective #1: To observe the installed Visual IoT system at all five locations in Chiang Mai and provide feedback and suggestions from the NICT team and project members from UCSY and NUOL. A discussion among NICT, other project members, and end-users from each sub-district was conducted regarding daily operations, maintenance, problem-solving, etc. This visit was part of the symposium.

- The installed systems in Chiang Mai have been operational since last March, and it has been proven that the system operates successfully in both dry and rainy seasons in Thailand. There are some issues with a newly constructed building near one installed system at Doi Koo 2, where the battery cannot be fully charged. It is recommended to move the solar panel to a sunnier area.
- There was an incorrect setting of the camera's ID, so the NICT team has rechecked all the required cameras in Thailand, Lao PDR, and Myanmar.
- One of the cameras with the Pan-Tilt-Zoom function is not being used to its full potential. The NICT team will recheck the settings of these cameras and will remotely access them. The smoke detection system, based on optical flow which was developed by the NICT team, will be tested on this camera for improved early-stage smoke detection performance.



The locations of experimental sites are shown in the figure below.



Objective #2: To share information and knowledge about the newly developed Visual IoT System, based on the new microcontroller (Sony's CXD5602), with all project members (NECTEC, UCSY, NUOL, and MU), as well as participants from the targeted subdistricts in Chiang Mai and the research community in Chiang Mai. The performance of the newly developed Visual IoT System will be compared with the installed system, and further experimental plans will be discussed.

- The NICT team explained the design and implementation of the newly d eveloped system and its use case in Japan. The benefits of the new sys tem, including the possibilities of reducing power consumption and the size of the battery and solar panel (current system 100 W, new system 10-20 W), were also discussed.
- The total cost of the new system is below 1,000 USD (current system a round 4,000 USD), making it suitable for wider application.
- The NICT team brought the newly developed system to demonstrate its operation and performance. The NICT team asked the NECTEC team to arrange a 3.7V lithium battery and an LTE-M (for IoT) SIM card. Howev er, the purchased SIM card could not successfully register and activate t he new Visual IoT board. The NICT team left the new Visual IoT board with the NECTEC team for further testing and discussion between NICT and NECTEC.

Objective #3: To organize a meeting among all project members to summarize the outcomes of the meeting, reconfirm the scope, action plan, and output of the project, and identify tentative activities related to the smoke/forest fire monitoring system based on the proposed Visual IoT System in each member country in more detail.

- The installed system in Lao PDR still has some problems and cannot consistently send images to the NICT server. NUOL will recheck with the vendor and discuss the issue with NICT and NECTEC to resolve the problem.
- The images taken by NUOL and UCSY cameras have not yet been transferred to the web application and the smoke detection notification system. In this regard, NECTEC has invited lecturers from Chiang Mai University (Dr. Pikul) to set senior projects for their students. Some students with a background in Machine Learning and Software Engineering could use the dataset collected in Chiang Mai and images taken from three countries (Thailand, Myanmar, and Lao PDR) for further development.
- The NICT team is interested in the volcano monitoring system in the Philippines and plans to discuss further cooperation.
- Since this project must be completed by June 2025 and the final report needs to be presented at the next ASEAN IVO Forum in November 2025, the next online meetings among project members have been scheduled.



V. Others























VI. Workshop Evaluation Questionnaire

WORKSHOP EVALUATION QUESTIONNAIRE

Workshop Name: _____ Symposium and Meeting on Visual IoT Network for Environment Protection and Disaster Prevention

Location: _ Novotel Chiangmai Nimmarn Journeyhub Hotel, Chiang Mai, Thailand ____

Date: ____25 – 27 February 2025_____

Participant Name (optional): ____ Dr. Pikul Vejjanugraha _____

Institution /Company name of participant (optional): ____ Chiang Mai University _

Job Title: _____Lecturer _____

Please give us your comments here:

Thank you for inviting me to attend this event. The presentations are very interesting

and insightful to the air pollution / smoke detection using AI. The IoT system



and camera detection is really needed pollution / smoke detection, and we can also

generate the model to predict the forest fire together with the fire prevention policy

from the local officer. In the future, we believe that the air pollution can be

successfully reduced because of everybody's efforts.