

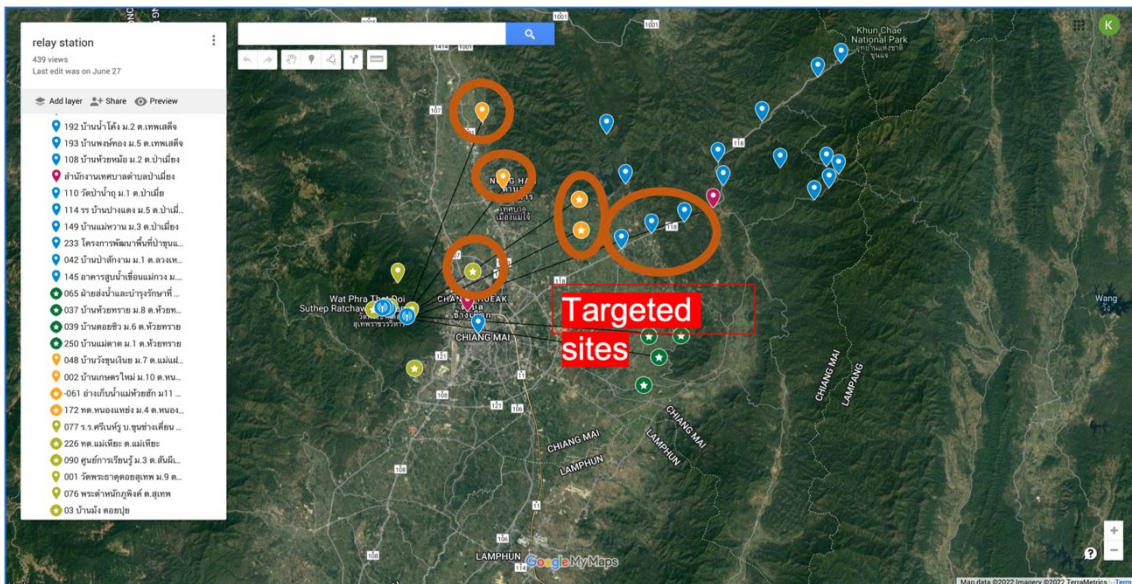
**Visual IoT Network for Environment Protection and Disaster Prevention
[Traveling to Field Test Sites in Chiang Mai Province, Thailand]
Report Form**

I. Proposer:

Name:	Mr. Kanokvate Tungpimolrut
Position:	Director of research group
Institution:	National Electronics and Computer Technology Center

II. Objective:

1. To discuss activities and experiments that will be done in Chiang Mai with representative of each sub district.
2. To discuss and visit prospective experimental sites (e.g., sub district that installed communication pole in previous ASEAN IVO -LoRa Relay project)
3. To collect image from the real sites and do the preliminary testing of smoke and fire detection .



Picture 1: Prospective experimental sites in each sub district in Chiang Mai province

III. Schedule:

Date: 26 – 29 September 2022

Venue: Chiang Mai province, Thailand

Program Agenda:

26 Sep	10.20 - 11.35	Travel from Bangkok to Chiang Mai 1.
	11:35 – 17:00	Venue: Department of Disaster Prevention and Mitigation (DDPM), Chiang Mai office. 1. Discuss activities and experiments that will be done in area around DDPM Chiang Mai office 2. Collect image from the real sites and do the preliminary testing
27 Sep	09:00 – 12:00	Venue: Choeng Doi Sub district (1 st location) 1. Discuss activities and experiments that will be done in area around Choeng Doi Sub district 2. Collect image from the real sites and do the preliminary testing
	13:00 – 17:00	Venue: Choeng Doi Sub district (2 nd location) 1. Discuss activities and experiments that will be done in area around Choeng Doi Sub district 2. Collect image from the real sites and do the preliminary testing
28 Sep	09:00 – 12:00	Venue: Choeng Doi Sub district (3 rd location) 1. Discuss activities and experiments that will be done in area around Choeng Doi Sub district 2. Collect image from the real sites and do the preliminary testing
	13:00 – 17:00	Venue: Pa Miang Sub district 1. Discuss activities and experiments that will be done in area around Pa Miang Sub district 2. Collect image from the real sites and do the preliminary testing
29 Sep	09:00 – 15:00	Venue: Nong Yaeng Sub district 1. Discuss activities and experiments that will be done in area around Nong Yaeng Sub district 2. Collect image from the real sites and do the preliminary testing
	15:00 – 16:00	Travel to Bangkok, Thailand

IV. Participant List & Itinerary:

No.	Name	Organization	Itinerary
1	Mr. Kanokvate Tungpimolrut	NECTEC	26/09/2022 (in)

			29/09/2022 (out)
2	Mr. Nathavuth Kitbutrawat	NECTEC	26/09/2022 (in) 29/09/2022 (out)
3	Representatives from Department of Disaster Prevention and Mitigation		NA
4	Representatives from Pa Miang sub district municipality		NA
5	Representatives from Nong Yaeng sub district municipality		NA
6	Representatives from Choengdoi sub district municipality		NA

V. Summary of the activities corresponding to the objectives

1. To discuss activities and experiments that will be done in Chiang Mai with representative of each sub district.

NECTEC team started to discuss to representative of department of disaster prevention and mitigation (DDPM) about the overall situation of forest fire in Chiang Mai city. In previous ASEAN IVO project entitled “Relay Station Network Based on Low-power Wide-area Network (LPWAN) Technologies for Disaster Management”, NECTEC team has installed 9 units of communication towers at DDPM and some sub districts in Chinag Mai as shown in Table 1. Therefore, DDPM recommended to visit and discuss to representatives of Choengdoi, Pa Miang and Nong Yaeng sub district. After discussion to each sub district, the location and number of Visual IoT system that we plan to install is concluded in Table 1.

Table 1. Location of tower and number of Visual IoT system

Organization	Number of tower	Forest fire problem	No. of Visual IoT system
Department of disaster prevention and mitigation	1	None	0
Choengdoi sub district	3	Frequently	3
Choengdoi – existing facilities #1	-	Frequently	2
Choengdoi – existing facilities #2	-	Frequently	1
Choengdoi – existing facilities #3	-	Frequently	1
Pa Miang sub district	1	Frequently	1
Nong Yaeng sub district	2	Frequently	3
Chedi Mae Krua sub district	1	None	0
Nong Harn sub district	1	None	0
Total	9		11

Remark: Choengdoi – existing facilities #1 is 30 m 3G mobile tower in front of sub district office
 Choengdoi – existing facilities #2 is another location in Doi Koo temple
 Choengdoi – existing facilities #3 is forest fire observatory tower



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2. To discuss and visit prospective experimental sites (e.g., sub district that installed communication pole in previous ASEAN IVO -LoRa Relay project)

NECTEC team visited each sub district one by one in order to introduce our ASEAN IVO project to executives and representatives. We also explained the activity plan and output of this project and interviewed about the situation of forest fire problem in each sub district. The targeted communities in each sub district which is affected by forest fire and need the Visual IoT system was also discussed. NECTEC team and representatives of each sub district visited the location of Visual IoT system installation. Some locations we could mount the camera on the top of our towers installed in previous ASEAN IVO project and the other locations we could mount the camera on the top of existing facilities of each sub district as shown in Table 1.

3. To collect image from the real sites and do the preliminary testing of smoke and fire detection.

In order to do the preliminary testing of smoke and fire detection in the real field, we do need a lot of authorized staffs in each sub district. However, Chiang Mai province was also affected by Noru depression, so most of disaster prevention and mitigation staffs of each sub district were busy and the humidity around each targeted community is very high. Therefore, it is very difficult to conduct the preliminary test. However, we could visit the targeted location in each sub district with some representatives of those sub district. At each location, we discussed and identified the area monitored by our Visual IoT system. At each location, we hire someone to climb up the LoRa tower and took the background images of targeted communities. After that we put the exact location including latitude and longitude of the location of the Visual IoT system and targeted monitoring areas on the google map. These informations will be finalized and confirmed by authorized persons in each sub district. Each sub district asked NECTEC team to do the preliminary testing of smoke and fire detection again around middle to end of October. For the preliminary testing, each sub district will assign 5-10 patrolling staffs to carry either smoke making machine or rice residue cube for artificial fire making in the forest. At each location, they will make an artificial smoke or fire about 5-10 points along the forest, so it will take about 1-2 days for each location.

VI. Others



Meeting and visit each targeted community with executives and representatives of each sub district.



Data collecting tasks



Example of collected image from LoRa tower installed at Nong Yaeng sub district



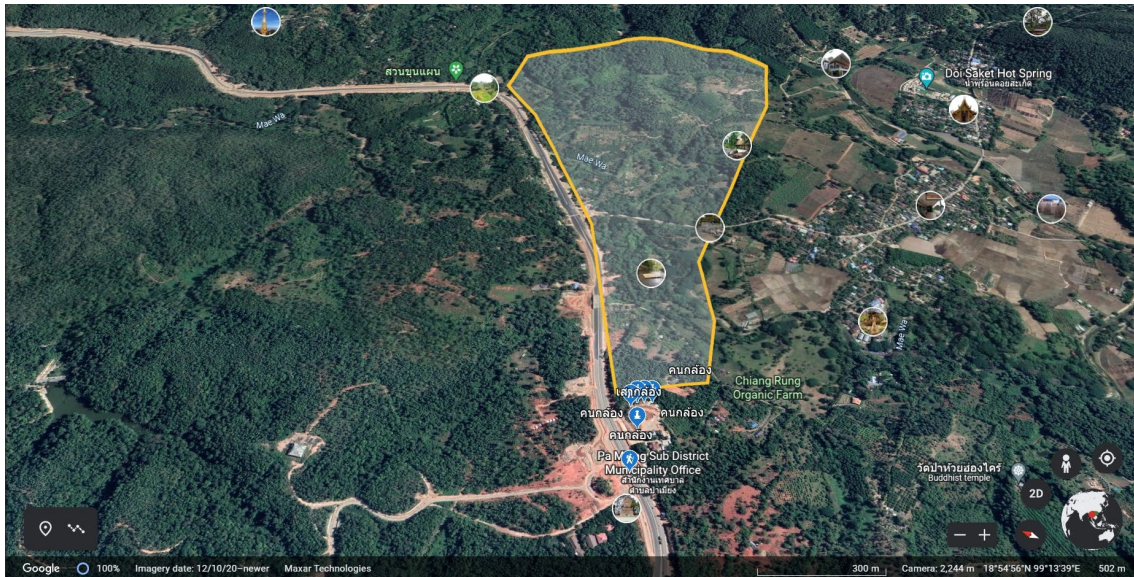
Targeted area in Chjoengdoi sub district for preliminary testing



Another targeted area in Chjoengdoi sub district for preliminary testing



Targeted area in Nong Yaeng sub district for preliminary testing



Targeted area in Pa Miang sub district for preliminary testing