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Asi@Connect

TEIN COOPERATION CENTER

Real-Time Haze Monitoring and Forest Fire Detection Information Centric Networks (SEA HAZEMON@TEIN)

OVERVIEW

The SEA-HAZEMON@TEIN platform is an IoT-based approach to supporting real-time air pollution monitoring and warning. The platform also provides data visualization for public users to monitor the haze situation plus an interface for researchers to analyze the spatial and temporal patterns of plume movement. (www.hazemon.in.th)

PROJECT

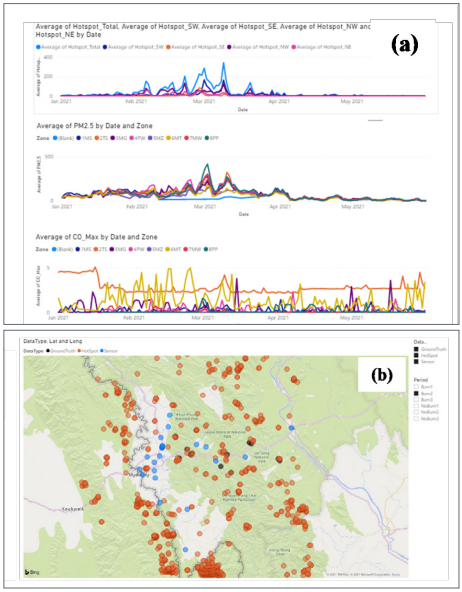
- **Quality Assessment of Canarin Air Quality Sensor (Thailand)**
  Several IoT sensor nodes were placed with standard reference air monitoring station in downtown Bangkok to collect the variation of PM2.5 and CO which were used for calibration process. The process aims to improve the accuracy and reliability of air quality measurement.

(a) Roadside monitoring location Bangkok

- **Real-World Field Deployment**
  With support from our partners, the Canarin sensor nodes have now been deployed to more than 100 nodes in Thailand, Laos, the Philippines and Indonesia. The deployment sites cover urban, rural and forested areas.

The deployment of Canarin sensor nodes in the 4 countries

- **Capacity Building Through Hands-On Workshops and Trainings**
  The project organized two technical workshops on Internet of Things (IoT) Technology and Data Analytics on Air Pollution. The workshops were carried out by our project members and experts in the field to deliver the latest technology and disseminate the project's outcomes. (see links below ,[1,2])
- **Data Analytics Model For Forest Fire Detection**
  The project aims to understand the characteristics of the haze plume to allow the early detection of forest fire incidents. Research carried out in Tak province, Thailand showed that PM2.5 and CO levels have a strong relationship with fire emissions.



(a) Comparison of PM2.5 , CO and hotspots during forest fire events
(b) and Visualization of reported hotspots in study area(Tak province, Thailand)

BENEFITS TO TEIN/ASI@CONNECT COMMUNITIES

- SEA-HAZEMON Platform
  The project has developed a network of local sensors plus the backend system providing health hazard warnings to local communities as well as alerting officials in case of forest fires.
- Air Quality Monitoring Open Data
  The sensors deployed in Thailand, Indonesia, Laos, and the Philippines collect data that are openly available to the community. Local researchers can observe interesting phenomena and investigate the types of open burning that are causing the haze hazard.

CHALLENGES

The project faced a number of COVID-19 challenges as lockdowns delayed sensor installations. In the Ongoing support of sensors and software means sustainability will become the key challenge. The project consortium hopes to gain more funding to keep this platform and community lively and active. th commitments made for further improvement.

[1] https://interlab.ait.ac.th/sea-hazemon-tein-workshop/

[2] https://interlab.ait.ac.th/sea-hazemon-tein-workshop2/

For more information

Asi@Connect : www.tein.asia

Disclaimer
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