SmartMetro :
Smart Metro Operations Enhancement through Data Analysis

Activities under SmartMetro Project

Meeting SmartMetro Research team

The SmartMetro research team had discussed via email regularly to update the progress of the project activities and plan. Every few months, the meeting was also held online via Cisco Webex. The recent meeting was on Friday 29 October 2021. Dr. Jirapan consulted the team on the metro operations data analysis and developing of metro data center framework, the activities planned, and the preparation of final project report. Dr. Taku and UCL team will prepare to launch the pre-recorded SmartMetro Professional Capacity Development course and offer free of charge for Thai academic and rail industry via online application.

Christmas Research Seminar

Mahidol University, Thailand and the University College London, UK has jointly organized a Christmas Research Seminar on Friay 17 December 2021. This is in addition to the Mahidol's regular Ph.D. research progress meeting which has been held every semester. The new initiative "Christmas Research Seminar" event is aimed for research exchange among researchers and graduate students of partner universities shortly before the Christmas break. It was held online via Cisco Webex during 15:30-17:30 hrs in Thailand local time or 8:30-10:30 AM in the UK. Two research projects of each university were presented and shared to researchers and students of both universities. The event went successful and enjoyable. It is planned to extend the activity to include more universities from Thailand and UK next year.
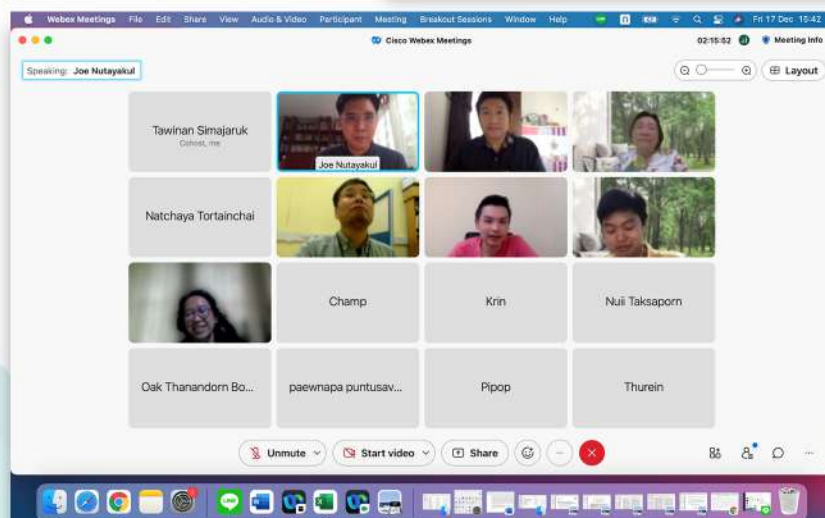
The topics presented at the Christmas Research Seminar are as follows:

Mahidol
- Mr. Kitiphan Nutayakul:
"Developing and Implementing the Reversed TOD Index for Unstructured TOD: The Case Study of Bangkok Metro"
- Ms. Lalitphan Samitiwantikul:
"Rail Data Exchange in the concept of Bangkok Rail Transit System"

UCL
- Mr. Joe Wright:
"Reinforcement Learning for Railway Junction Control"
- Dr. Taku Fujiyama:
"Wifi-tracking of passengers on metro platform"

SmartMetro :
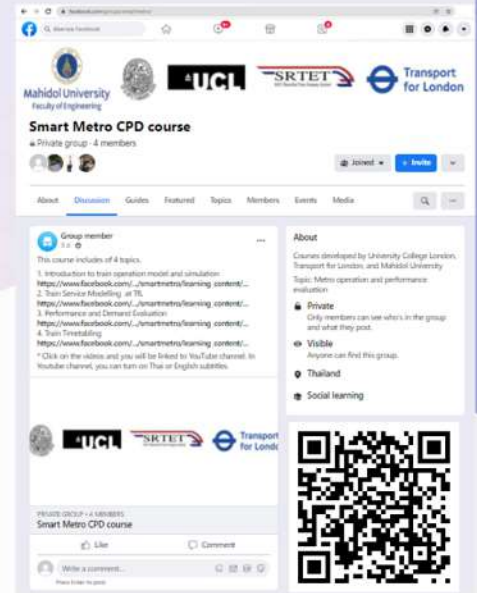## Smart Metro Operations Enhancement through Data Analysis

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Smart Metro CPD course
The SmartMetro Capacity Professional Development (CPD) course was developed by University College London, Transport for London, and Mahidol University. The topic is on "Metro operations and performance evaluation." The course has been uploaded on Facebook, a social learning group, as following link:
https://www.facebook.com/groups/smartmetro/

The course is offered free of charge for all interested participants who complete registration forms. A link to access the course will be sent to the registered emails before joining the course. Thai and English subtitles are also provided. Four modules are included:
1. Introduction to train operation model and simulation
2. Train Service Modelling at Transport for London (TfL)
3. Performance and Demand Evaluation
4. Train Timetabling

After watching each module, the participants are able to give comments, discuss, ask questions, and take quizzes though the social media. The participants who pass the quizzes with more than 70% correct answers of all four modules will be eligible for a certificate of attendance from the SmartMetro project.

The course link of the four topics are as follows.
1. Introduction to train operation model and simulation
   (Natchaya Lailomthong)
2. Train Service Modelling at Transport for London (TfL)
   (David Winslett)
3. Performance and Demand Evaluation
   (Hovard Wong)
4. Train Timetabling
   (Taku Fujiyama)

Topic No.1
Topic No.2
Topic No.3
Topic No.4

Continuing Future Activities: SmartMetro Project

The activities held under the SmartMetro project funded by Newton Fund will be carried on to the next few years. The Christmas Research Seminar is planned to be held again in December 2022 with more universities to participate. It is expected that the faculty members and researchers of Liverpool John Moore University and the University of Manchester will join the event and be willing to share their research work with Thai universities next year. Instead of topic related to metro operations, the future research topic may shift to a wider topic like logistics, transportation or supply chain management.

For the CPD course, the Facebook link will continue and be offered free of charge to all participants. This will be benefit for Thai academia, government, and industries to learn from experienced people from UK.

For the concept of data analysis and the data center framework for monitoring and control of metro operations will be handed over to the Department of Rail Transport which its staff and executives are also the member of the SmartMetro project. It is hoped that the Department will consider to adopt the report for preparing a national blueprint for monitoring and control metro operations in the future.

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