The Institution of Engineers, Malaysia
(Penang Branch)

In Collaboration with:

Royal Academy of Engineering

1-Day Seminar:
IoT System for Water Reuse in Developing Cities

31 Jan 2024 (Wed)

8.30am – 6.15pm

Moderator
Assoc. Prof Ir Dr Leo Choe Peng

IEM SECRETARIAT OFFICE
1-04-02, E-Gate,
Lebuh Tunku Kudin 2
Gelugor, 11700 Peang

BEM CPD Hours: 6
Ref: IEM24/PG/022/S

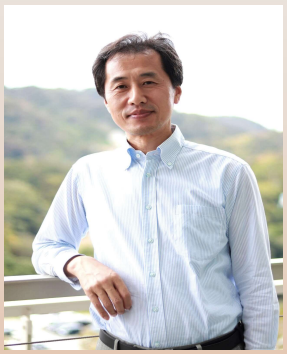
REGISTER ONLINE @
event.iempenang.org

IEM Member : FOC
Non-IEM Member: RM60

Synopsis

Topic 1: Device-to-device (D2D) communication and its application

Device-to-Device (D2D) communication in cellular networks is defined as direct communication between two mobile users without traversing the Base Station (BS) or core network. The IoT devices are used to collect the data from the sensor to control water pollution, whereas D2D communication is known as cost and time-effective. The wireless technology for data collection in different engineering applications was introduced. Bluetooth, WiFi Direct, and others can be used in D2D communication, allowing remote communication and, at the same time covering larger areas.



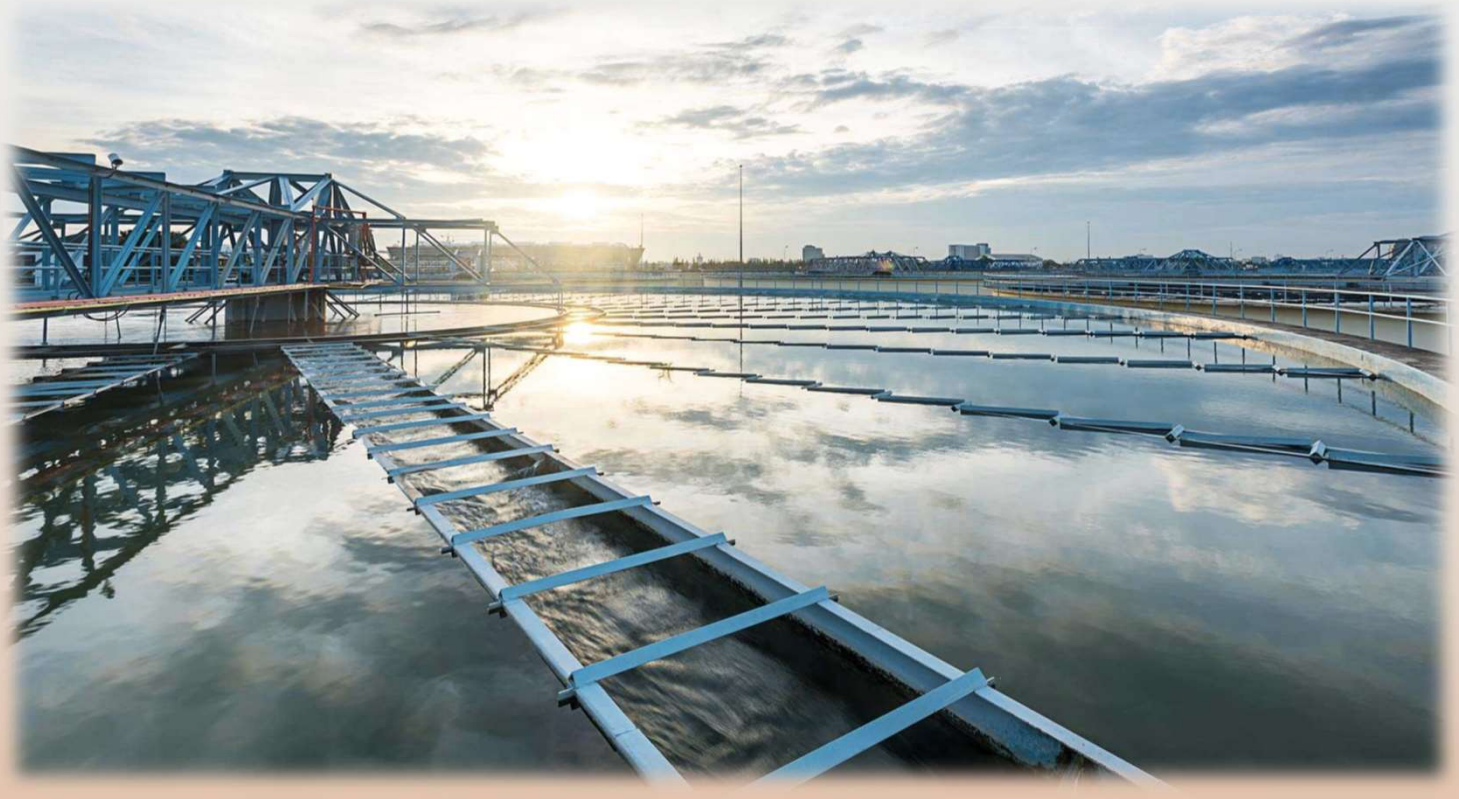
Spearker 1: Dr. Huan-Bang Li (National Institute of Information and Communications Technology, Japan)

Dr. Li received the Dr. of Eng. degrees from Nagoya Institute of Technology, Nagoya, Japan in 1994. Since then, He has been working with the Communications Research Laboratory (now reshuffled to National Institute of Information and communications Technology: NICT), Japan. His research interests include mobile satellite communication, ultra-wideband (UWB), device-to-device (D2D) communication, etc. He is now a chief senior researcher of NICT.

From 1999 to 2000, he was a Visiting Scholar at Stanford University, CA, USA. He has been a Visiting Professor since 2010, at the University of Electro-Communications, Tokyo, Japan. He received the Young Engineer Award and the Excellent Paper Award of IEICE Japan in 1996 and 1998, respectively, the Distinguished Patent Award from the Ministry of Science and Technology Agency of Japan in 2000, the Best Achievement Award of NICT in 2009, and IEEE-SA Standards Board acknowledges with appreciation in 2012 and 2018. He authored a book “Block-coded modulations using Viterbi decoding” (in Japanese) in 1999 and co-authored a book “Wireless Body Area Network” in 2010.

Topic 2: IoT for environmental management in Vietnam, from policy to implementation

The case study related to the uses of IoT for environmental management in Vietnam is introduced. The uses of IoT devices in water management systems involve the sensors, controllers, meters, and the others to collect the real time water analysis by connecting the IoT device to the mobile apps with or without WiFi. It monitors the water quality, detect the pollution of water, in an effective way. The policy and implementation of IoT devices in Vietnam is explained.



Speaker 2 :
Dr. Tran Thi Phuong Quynh (Ton Duc Thang University, Vietnam)

Dr. Tran Thi Phuong Quynh currently is the Head of Department of Environmental Science, Faculty of Environment and Labour Safety, Ton Duc Thang University, where she has been since 2015. She received an engineering degree in Environmental Science (2015) from Ton Duc Thang University, M.Sc. (2017) from Ming Chi University of Technology, and Ph.D. from the Graduate Institute of Environmental Engineering, National Taiwan University in 2021.

Her research interests include solid waste/wastewater treatment and recovery technology. Much of her work has been focused on recovery of valuable resources from semiconductor wastewater/agricultural and household waste/marine materials; microwave-induced catalytic oxidation process; low-cost and environmentally friendly adsorbent; corrosion inhibitor for recirculating cooling water systems; low-cost disinfectant; and smart water management with IoT. She published her works in indexed journals such as Environment International, Journal of Water Health, Journal of Cleaner Production, and Industrial & Engineering Chemistry Research.

Topic 3: IWK's Journey on Waste to Resource Towards a Resource Efficient & Circular Economy in Malaysia

IWK maximizes the efficient use of resources and minimizes water through innovative solutions. This contribute to sustainable energy practices and support the transition towards clean and renewable energy sources.

Speaker 3 :
Ir. Khor Bee Chin (Senior manager in Technology & Innovation Section, Indah Water Konsortium Sdn. Bhd, Malaysia)

Ir. Khor Bee Chin received B.Sc. in Chemical Engineering from The Queen's University of Belfast, Northern Ireland, United Kingdom in 1994, and master of business administration from The Nottingham Trent University, UK in 2003. She is the project management professional, project management Institute PMI, a professional engineer with practising certificate, Board of Engineers Malaysia, and also a member of Institution of Engineers Malaysia. She is a dynamic and result oriented senior manager with immerse passion to nurture and groom creative and cohesive team to strive for excellence, a profession engineer with 30 years of experience in wastewater industry involving in spanning from strategic planning, engineering planning and design review, feasibility study, sewage treatment process, waste to resource technology, environmental sustainability assessment development.

She is also a proficient project manager with proven track records in planning and managing engineering projects and coaching multi- disciplinary project teams. She is now a senior manager in Technology & Innovation Section, Indah Water Konsortium Sdn Bhd, Malaysia.

Topic 4: Transition to green logistics in Malaysia

The water pollution can be caused by human activities, or direct sources. It can be indirectly polluted by the emission from factories, fertilizer, waste management facilities and domestic waste. Green logistics includes the business practice, which aims to minimize the environmental impact of the logistic network and delivery.

The idea is supported by the technology in logistics management, such as artificial intelligence, and machine learning. It can minimize the emission generation across the supply chain, reducing the environmental impact.

Speaker 4 :
Mr. Gooi Liang Zheng (Greenetrix Sdn. Bhd, Malaysia)

Mr Gooi Liang Zheng holds a BSc Computer Science from University of Wisconsin-Madison since 2014. He has working experience in Qualcomm, Rohde & Schwarz and OnApp, ranging from building router application to content-delivery network (CDN). He currently serves as software developer at Functionize and building the machine learning application for test automation.

He also involved in startups, in the field of cybersecurity and environmental, social & governance (ESG). He is also part of U.S.-ASEAN Smart Cities Partnership (USASCP) program to foster green logistics in Malaysia. He works with stakeholders in Universiti Sains Malaysia, United Cities, Penang Green Council (PGC), Digital Penang, GPS Fleet and Safe Truck to help companies transition towards low carbon operation.

Topic 5: Revolutionary milestone in water resources management: Application of SCADA and IoT in the context of Malaysia

SCADA is Supervisory Control And Data Acquisition, and it refers to a large-scale measurement system. The application of SCADA and IoT devices in water resources management is the creation and development of advanced information technology in industries. SCADA grows rapidly in industries to monitor the industrial network and processes. IoT and SCADA, with the real time monitoring control in the industry, providing machine-to-machine communication, enhance the overall effectiveness.

Speaker 5:
Ts. Tah Ai Sher (TCK solutions (M) Sdn. Bhd)

Ts. Tah obtained B. Sc. (Computer Science) in 2004 and MSc. (Hydroinfomatic) in 2018. She is currently the Chief Technology Officer in TCK e-solutions (M) Sdn. Bhd. after 20 years of service. She is responsible in consultation related to Hydroinfomatic, SCADA System Architecture and Software Development. She focuses on the implementation data wrangling, pre-processing, preparation, post-processing scripts for available raw environmental data, statistical and machine learning algorithms for data analysis and knowledge derivation, as well as data visualization solutions for post processing and communication to internal and external teams.

She further designs and conducts scientific hydrogeological investigations to ensure that accurate and appropriate information is available for use in water resource management decisions.

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Agenda

TIME	TOPIC	SPEAKER
8.30-8.45 am	Welcome remarks and introducing ASEAN IVO and Frontiers Seed Funding projects	Project Leader Assoc. Prof. Ir. Dr. Leo Choe Peng
8.45-9.00 am	Introduction to IEM	Ir. Ts. Dr. Chang Chun Kiat
9.00-9.30 am	Introduction to Wireless Networks Research Center, the National Insittue of Information and Communications Technology (NICT)	Dr. Matsumura Takeshi
9.30 -10.30 am	Device-to-device (D2D) communication and its applications	Speaker 1: Dr. Huan-Bang Li [Wireless Networks Research Center, the National Insittue of Information and Communications Technology (NICT)]
Tea Break **10.30 – 11 am**	TEA BREAK	Networking & exchange name cards
11.00 am - 11.30 pm	Introduction to Ton Duc Thang University	Dr. Ho Ngo Anh Dao
11.30 am – 12.30 pm	IoT for environmental management in Vietnam, from policy to implementation	Speaker 2: Dr. Tran Thi Phuong Quynh [Ton Duc Thang University (TDTU)]
12.30 – 1.00 pm	Introduction to NICT and ASEAN IVO	Dr. Emoto Hiroshi
1.00 -2.00 pm	LUNCH/ PRAYER TIME	
2.00-3.00 pm	Sharing of IWK journey on Waste to Resource Towards a Resource Efficient & Circular Economy in Malaysia	Speaker 4: Ir. Khor Bee Chin
3.00-4.00 pm	Transition to green logistics in Malaysia	Speaker 5: Mr. Gooi Liang Zheng
4.00-4.15 pm	TEA BREAK	Networking & exchange name cards
4.15-5.15 pm	Revolutionary milestone in water resources management: Application of SCADA and IoT in the context of Malaysia	Ts. Tah Ai Sher (TCK e-solutions (M) Sdn. Bhd.) - Speaker 6
5.15-6.15 pm	Closing remarks and Survey on Water-Energy Food Nexus	Project Leader Assoc. Prof. Ir. Dr. Leo Choe Peng