



Adaptive Data Radio for 5G LoRaWAN-based Future Internet of Things

Training Programme
by
Faculty of Engineering
Multimedia University

Overview

Why Adaptive Data Rate? Why the Internet of Things (IoT)? Why Long Range Wide Area Networking (LoRAWAN)? These are the technologies with the newest development in communication technologies. These kinds of technologies are vital for IoT cloud platforms to collect and manage data from the end-devices such as sensors that are usually powered up by battery resulting in less maintenance. It is crucial for the end-devices to transmit low data rate at long range with least power consumption. In this workshop, the participant will learn about the Adaptive Data Radio (ADR), LoRaWAN (Long Range Wide Area Network) which has been named as one of the leading LPWAN alongside SigFox, NB-IoT, LTE and 5G. LoRaWAN has upraised to become a popular network infrastructure to cater long-range communication using super low-powered devices for large-scale IoT deployments in today life, 2021. This workshop is useful in Telco in Malaysia for service satisfaction.

Objective

This workshop is expected to provide a good solid fundamental of ADR, LPWAN, LoRAWAN and IoT which is demanded by Telco.

Target Audience

UG student, PG student, researcher, technician, engineer.

Prerequisite

None.

Training Methodology

Virtual Training.

Course Duration

2 days only (7 hours per day).

Content/Outline

1. Why Adaptive Data Rate ?
2. Introduction to Low-Power Wide Area Networks (LPWAN) ?
3. Why Long Range Wide Area Network (LoRaWAN) ?
4. Spreading Factor (SF), bandwidth, transmission power and coding rate.
5. Chirp Spread Spectrum scheme
6. LoRa uses Chirp Spread Spectrum (CSS) modulation technique
7. Optimization with Gateways Densification
8. Optimization with Capture Effect
9. Optimization with Enhanced Spreading Factor allocation
10. Tentative: Morning (Theory and Concept), Afternoon (Hands-on and Practical)

Course Instructors

Assoc. Prof. Dr. Mardeni Bin Roslee

Assoc. Prof. Ts. Dr. Mardeni Roslee is an academician under Faculty of Engineering, Multimedia University, Cyberjaya, Malaysia and he is a Chairman for Centre of Wireless Technology, Multimedia University. From 2019-2020, he is a Chairman of IEEE Malaysia Comsoc/VTS and Vice Chair of Malaysian Radar & Navigations, Malaysian Society for Engineering & Technology. He is the CEO and main founder of Armada Smart Tech MR Sdn Bhd. He is a registered Chartered Engineer with Engineering Council United Kingdom, and Member with The Institution of Engineering and Technology (IET), UK. His experiences include consultation, professional institution and academic sectors. His current research interests are 5G/6G wireless communication, satellite, Internet of Things. He has published 110 papers for indexed journals, conference proceedings, professional magazine and book chapters. He is the consultant for international, private and government sectors and as the principal investigator of research grants of industry, local and international level. His contributions to academic and the engineering profession over the years have earned him recognition nationally and internationally, he is the recipient of University Excellent Researcher Award for 2016 and 2018, Excellence in European Creativity Special Award 2018, World Invention Special Award 2019, and awarded Top Research Scientist in Malaysia 2020.

Administrative Details

Programme Logistics

Duration: 2 days (7 hours per day)

Dates, registration deadline and registration form:

Please refer to: <https://www.mmu.edu.my/foe/short-courses/>


Your Investment

	Condition	Price per Pax
Regular Fee	Students / MMU Alumni/ IEEE Students	RM600
	Public	RM1000
	Public (Group >5 pax)	RM900
	IEM/IEEE Members	RM900
Early Bird Fee	Students / MMU Alumni/ IEEE Students	RM400
	Public	RM800
	Public (Group >5 pax)	N/A
	IEM/IEEE Members	RM700

Method of Payment

Please refer to the next page.

Type of Payment	Method	Details
Local Transaction / Payment within Malaysia	Online Payment with JomPay	<ul style="list-style-type: none"> To get started, login to any preferred internet banking. Look for JomPay to begin the payment process. Enter Ref 1 & Ref 2. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <p>Billor Code : 22202 Ref-1 : <Participant IC/Passport> Ref-2 : Event Name*</p> </div> <p>JomPAY online at Internet and Mobile Banking with your Current, Savings or Credit Card account</p> <p>*Ref. 2: FOE5GLoRaWAN</p>
		<ul style="list-style-type: none"> To get started, go to MMU website (https://www.mmu.edu.my/) > Admission > Financial Info > Payment Channel > Non Student ; <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>E-Payment To begin the payment process, please click Student or Non Students</p> <p>  </p> <p>Student Non-Student</p> </div> <p>or scan the QR code below to begin the process:</p> <div style="text-align: center; margin: 10px 0;">  <div style="background-color: black; color: white; padding: 5px; display: inline-block; border-radius: 10px;">SCAN ME</div> </div> <ul style="list-style-type: none"> Choose Category: Public Training Workshop Name Choose Your Participant Type: <ul style="list-style-type: none"> ✓ STUDEN (MMU, IEEE, IEM, Other Higher Learning Institution) ✓ PUBLIC ✓ GROUP (Group > 5 Pax) ✓ IEEE/M (IEEE/IEM Members)

Type of Payment	Method	Details
International Payment / Payment outside Malaysia	Online payment with Flywire 	<ul style="list-style-type: none"> To get started, go to mmulanding.flywire.com; or scan the QR code to begin the payment process: <div style="text-align: center;">  SCAN ME </div> <ul style="list-style-type: none"> Choose Conference for Non-students related

Note:

Please submit the proof of payment to organizer for clearance updating purposes within 2 working days.

Refund and Cancellation

Any refunds will be processed in 60 days. Should there be any cancellation, it may be due to the organizer not getting the minimum participants or the participant failing to attend the workshop due to unavoidable reason.

Disclaimer

Faculty of Engineering, Multimedia University reserves the right to change the instructors, date and to vary/cancel the programme should unavoidable circumstances arise. All effort will be taken to inform participants of the changes. Upon submission of the registration form, you are deemed to have read and accepted the terms.

Enquiries

Dr. Zubaida Yusoff: zubaida@mmu.edu.my

Ms. Sherry Dalilla Abd. Rahim: dalilla.rahim@mmu.edu.my