# WEBINAR TALK ON
# SOFTWARE DEFINED RADIO

*Organized by Information and Communication Technology Special Interest Group (ICTSIG)*

## 15 OCTOBER 2021 | FRIDAY | 5.30 PM – 7.30 PM

### By : Associate Prof. Ir. Dr. Harikrishnan A/L Ramiah
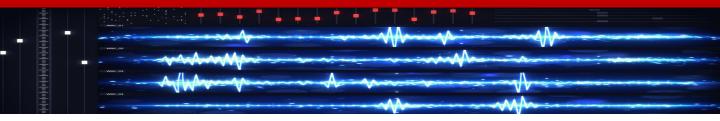
## SYNOPSIS

Software Defined Radio (SDR) refers to wireless communication in which the transmitter modulation is generated or defined by a computer. The receiver then also uses a computer to recover the signal intelligence. The behaviour of a communication system can be modified by simply changing its software. In this model, one moves to the software the task to set radio behaviour, leaving to hardware only the implementation of RF front-end. Thus, the radio is no longer static, defined by their circuits and becomes a dynamic element, which may change their operating characteristics, such as bandwidth, modulation, coding rate, even modified during runtime according to software configuration.

SDR is useful in a wide range of areas within wireless systems. The primary goal of SDR is to replace as many analog components and hardwired digital VLSI devices of the transceiver as possible with programmable devices. These include the air interface, modulation and coding schemes, analog-to-digital converter (ADC), and digital-to-analog converter (DAC).

Traditional hardware-based radio devices limit cross-functionality and can only be modified through physical intervention. This results in higher production costs and minimal flexibility in supporting multiple waveform standards. By contrast, software defined radio technology provides an efficient and comparatively inexpensive solution to this problem, allowing multi-mode, multi-band and/or multi-functional wireless devices that can be enhanced using software upgrades.

This Talk will share with audience definition of Software-defined radio (SDR), concepts, advantages, design and architecture of Software Defined Radio (SDR).

**Registration Fee:**
**IEM Member: Rm15**
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# SPEAKER'S PROFILE:



**Harikrishnan Ramiah** is currently an Associate Professor at Department of Electrical Engineering, University of Malaya, working in the area of RFIC/RFEH design. He received his B.Eng (Hons), MSc and PhD degrees in Electrical and Electronic Engineering, in the field of Analog and Digital IC design from Universiti Sains Malaysia in 2000, 2003 and 2008 respectively. In the year 2003, he was with SiresLabs Sdn. Bhd, CyberJaya, Malaysia. At the year 2002 he was attached to Intel Technology Sdn. Bhd. Harikrishnan was the recipient of Intel Fellowship Grant Award, 2000-2008.

Harikrishnan is the Director of the Centre of Industry Reserch 4.0 (CRI 4.0) and the Head of Analog, Digital & RF Research group at University of Malaya. His work revolves in providing expert solution to industry in the strength of IR 4.0. Through CRI 4.0, he regulates expert collaborative effort of the faculties in University of Malaya outsourcing solution to SME and MNC. He had produced silicon verified IPs in the field of Analog, RF and RFEH Integrated Circuit Design. With a reputable research output and solution, he has secured several international, national and industrial grant from the year 2014 till date. He serves as an Associate Editor of IEEE Access in a recognition towards his research credibility. He is a Chartered Engineer and the Fellow of Institute of Electrical Technology (IET). He is also a **Professional Engineer with Practicing Certificate** registered under the Board of Engineers, Malaysia. He is a Fellow Member of IEM, Senior Member of the Institute of Electrical and Electronics Engineer (IEEE) and member of The Institute of Electronics, Information and Communication Engineers (IEICE). His research work has resulted in several reputable technical publications in the field of Electrical & Electronics Engineering. His main research interest includes Analog Integrated Circuit Design, RFIC Design, VLSI system design and RF/Piezoelectric/Thermal/Electromagnetic Energy Harvesting Power Management Module Design.

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