

TRANSFORMING YOUR FACTORY INTO A SMART FACTORY: The Revolution of Industry 4.0

ELECTRONIC ENGINEERING TECHNICAL DIVISION

reported by



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On 22 March 2019, the Electronic Engineering Technical Division (eETD) of IEM organised an evening talk on "Transforming Your Factory Into a Smart Factory: The Revolution of Industry 4.0, by Associate Professor Dr Selvakumar Manickam of National Advanced IPv6 Centre, Universiti Sains Malaysia. Held at IEM Penang Secretariat, the talk was attended by 17 participants.

Dr Selvakumar started the talk by giving an overview of Industry 4.0 as follows:

- Digitalisation of Industry: Connecting machines, storage systems and equipment (cyber-physical system).
- Vertical (company departments) and horizontal (various business partners across the chain value) integration.
- Intelligent machines with independent information exchange.
- Smart Factory: Clearly identifiable and localised products.
- Controlling and optimisation in real time.

This was followed by an overview of Internet of Things (IoT) as follows:

- Device – hardware and software that directly interacts with the world.
- Gateway – enables devices not directly connected to the Internet, to reach cloud services.
- Cloud – where data is processed and combined with data from other devices and, potentially, with other business-transactional data.

He also touched on various data transmission protocols such as Transmission Control Protocol (TCP), Internet Protocol (IP), IoT data management in cloud, machine learning, data analytics, infrastructures and platforms used to enable IoT and smart factory.

He further elaborated on SEMI Equipment Communications Standard/Generic Equipment Model SECS/GEM which is semiconductor equipment interface protocol for equipment-to-host-data communications. It is an important standard to enable a smart factory.



Group photo and presentation of the certificate of appreciation to Dr Selvakumar

Finally Dr Selvakumar mentioned a case study in which various machines in a small and medium enterprise (SME) factory were connected by setting up a machine to host communication. By doing so, manual data entry and monitoring were replaced by real time online monitoring.

The talk ended at 8.10 p.m. It was indeed an insightful talk as Dr Selvakumar shared his know-how and expertise in data communication, holistic views of Industry 4.0 and of smart factories. ■