**INDUSTRIAL TALK**

**(IOT AND INTERNET 2.0)**

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**LECTURE DR. ARYATI BINTI BAKRI**

**GROUP ASSIGNMENT:**

**LEE CHEN HONG (A18CS0094)**

**MUHAMMAD ALIFF SOLAHUDDIN BIN NORDIN (A18CS0124)**

**NUR ASNANI BINTI HASSAN (A18CS0186)**



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#  INTRODUCTION

An industrial talk about HP & Maxis was held at Faculty of Electrical Engineering, UTM on 18th November 2018. The talk was talking about Internet of Things (IOT) and Internet 2.0. Topic for IOT was given at 11:00 A.M to 12:00 P.M while topic for Internet 2.0 at 12:00 P.M to 1:00 P.M. In the first topic, the talk was given by Mr. Syahrul Hafidz Suid, Enterprise Consultant. The second topic was given by Mr. M Nazrul Hazeri Nazirmuddin, Solution Design Architect from Maxis Berhad Cisco Service Provider.

Internet of things is network devices, vehicles and home appliances contain software, actuators, connectivity and electronics which allows things to connect, interact and exchange data. Internet of things involves internet connectivity beyond standard devices such as laptops, smartphone and tablets in any range of non-internet-enabled physical devices. These devices can communicate and interact over the internet and remotely monitored and controlled. In history, Internet of things has evolved due to convergence of multiple technologies such as real-time analytics, machine learning, commodity sensors and embedded systems.

Internet 2.0 refers to World Wide Web websites that emphasize user-generated content, usability which mean ease of use, participatory culture and interoperability. Interoperability means that a website can work well with other products, systems and devices. An Internet 2.0 may allow user to interact and collaborate with each other in social media in contrast to the first generation of Internet 1.0 where people were limited to viewing of content.

#  CONTENT

##  IoT

The talk was take one hour from 11.00 a.m. until 12.00 p.m. and it was given by Mr. Syahrul Hafidz Suid, Enterprise Consultant of Hewlett Packard Enterprise. The talk is about Predictive Maintenance Gets an Extreme Makeover. The concept of predictive maintenance is probably as old as the first machines that human invented. In the recent past, predictive maintenance solutions were focused on complex machines, such as jet engines, for which failure would be catastrophic. Often, those systems involved the compilation of large amounts of historical data, the application of machine learning, and the creation of a digital “twin”, a digital rendition of the physical machine that would perform virtually like its physical counterpart. Now, with the advent of the Internet of Things (IoT), the lowering of connectivity and storage costs, and the creation of vast amounts of data, predictive maintenance is transforming industries and machines that were previously out of reach. The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. Plus, hardware, software, and security solutions that put IoT into action in the connected world, providing valuable insights from devices and data at the Intelligent Edge.

An IoT ecosystem consists of web-enabled smart devices that use embedded processors, sensors and communication hardware to collect, send and act on data they require from their environments. IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices communicate with other related devices and act on the information they get from one another. The devices do most of the work without human intervention, although people can interact with the devices.

In this talk, there have three agenda which is Worldwide CIO Agenda 2019 Prediction by IDC, Industry 4.0-Technology Trends and IoT- Predictive Maintenance. Firstly, Worldwide CIO agenda have 5 prediction. Prediction 1, by 2021, driven by LOB needs, 70% of CIOs will deliver “agile connectivity” via APIs and architectures that interconnect digital solutions from cloud vendors, system developers, start-ups, and others. Prediction 2, is compelled to curtail IT spending, improve enterprise IT agility, and accelerate innovation, 70% of CIOs will aggressively apply data and AI to IT operations, tools, and processes by 2021. Prediction 3, is by 2022, 65% of enterprises will task CIOs to transform and modernize governance policies to seize the opportunities and confront new risks posed by Al, ML, and data privacy and ethics. Prediction 4, through 2022, 75% of successful digital strategies will be built by a transformed IT organizations, with modernized and rationalized infrastructure, applications, and data architectures. Prediction 5, by 2020, 80% of IT executive leadership will be compensated based on business performance and growth, not IT operational measures.

Next, The Industry 4.0 concept focuses more on enterprise-wide business process automation which can create a "smart factory".  Industry 4.0 also allows for the development of new business models which may contribute to radically new ways of interaction across the whole value chain. The term "Industrie 4.0" originated with a program of the German government which promotes the computerization of manufacturing.  The characteristics given for the German government's Industry 4.0 strategy are the extensive customization of products under the conditions of highly flexible mass-production.  The associated automation technology utilizes methods of self-optimization, self-configuration, self-diagnosis, cognition and intelligent support of workers in their increasingly complex work.



Figure 1 : Industry 4.0

Other than that, predictive maintenance requires the ability to process large amounts of data and run sophisticated algorithms, which cannot be achieved with local implementation within SCADA. An IoT-based solution, on the other hand, allows storing terabytes of data and running machine learning algorithms on several computers in parallel to forecast potential hazards and pinpoint when industrial equipment is likely to fail.

##  Internet 2.0

Man-computer symbiosis is a fundamental or key text of the modern computing revolution. At future time, artificial intelligence may surpass and become independent from human direction. Man well only need call the task to the computer and AI will do it.

The first workable prototype of the internet came in the late 1960s with the creation of ARPANET. In the history of development of internet, internet can be divided into simply two phase. The origin of the internet is disconnected to other household but only connected to the computers of two company and it is scattered and unregulated. Internet 1.0 refers to the first stage in the Internet developed. Internet start connected wide and made us can do communication between people and people through email. The internet provide the website owner to make their information available to anyone at any time.

The internet we now use is called Internet 2.0. The user not only can read the content on the internet but can now store their data to the internet with cloud computing. The new concepts introduced by internet 2.0 include blockchain start up, distributed, decentralized, empowered.

Decentralized computing is the allocation of resources, both hardware and software, to each individual workstation, or office location. In contrast, centralized computing exists when the majority of functions are carried out, or obtained from a remote centralized location. Decentralized computing is a trend in modern-day business environments. This is the opposite of centralized computing, which was prevalent during the early days of computers. A decentralized computer system has many benefits over a conventional centralized network. The decentralized internet, could be a chance to take control of our data back from the big technology firm. People can manipulated the data on the internet.

Blockchain is a growing list of records, called blocks, which are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. As past, transaction money of money payment on internet have to through the bank as intermediate. But with the technology of blockchain it can do in peer-to-peer without the bank and eliminate the intermediate ports. This technology is very useful to keep user secure which is applied in online payment.

# 3.0 SUMMARY

Internet of Things is a network constituted by devices equipped with some sensing systems. Therefore, Internet of Things promotes a smooth consolidation between smart devices, scatter around us, and the physical world to ensure full automation that eventually give human life more better. As Internet of Things and its applications are majorly impacting human life, the scientific communities watching a boarder outreach from the processing and sharing of Internet of Things across the variety of the several devices around us. Consequently, the development of new capable technologies is encouraged to the current data processing need.

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