

INDUSTRIAL REVOLUTION 4.0

- INTERNET OF THINGS -

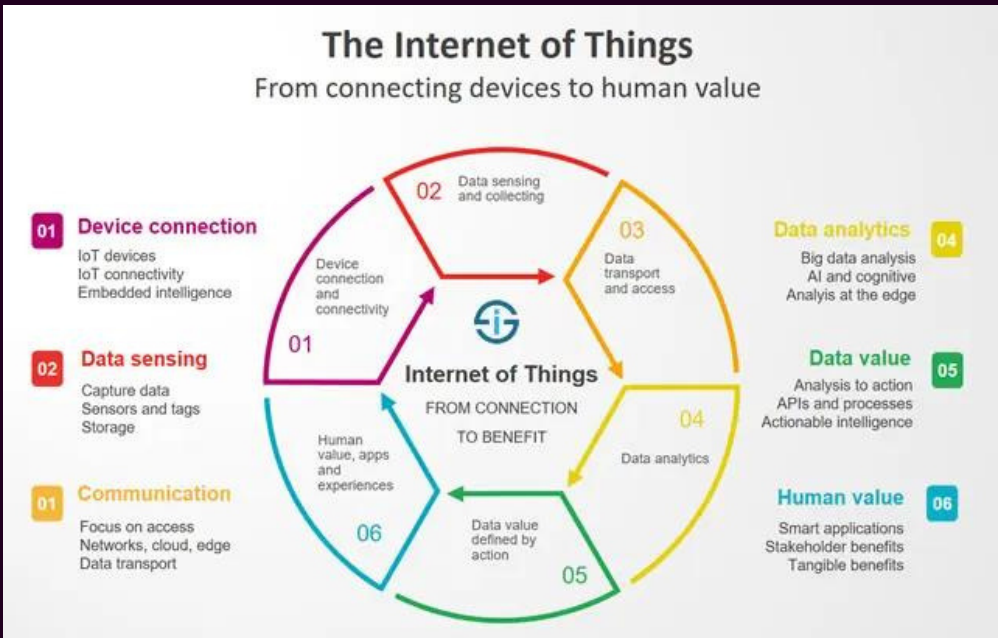
INTRODUCTION OF IR4.0

Fourth industrial revolution (IR 4.0) are known as the emerging process of new technologies where smart technologies are used to automate old productions and manufacturing operations [Fourth industrial revolution, (2021)]. IR 4.0 includes the advancement of machines and systems which could benefit in enhancing the production, efficiency and the quality of technologies leading to the creation of smart factories, the automation and self-optimization which allow machines and equipment to optimise processes in a fully digitalized and connected environment [What is the smart factory and its impact on manufacturing, (2019)]. The components of IR4.0 includes internet of things, cloud computing, big data and analytics, system integration, simulation, additive manufacturing, autonomous robots, augmented reality and cybersecurity.

INTRODUCTION OF IOT

Internet of things, or known as IoT is a network of interconnected computing equipment, including mechanical and digital machines, that can convey data without the need for human-to-human or human-to-computer interaction [Gillis, A. S. (2020)]. IoT also refers to the countless of devices linked to the internet worldwide that gather and analyze data with one another. Internet of Things (IoT) works by exchanging and acquiring data on how the connected devices are being used and the environment in which it operates [Gillis, A. S. (2020)]. The internet of things is used and implemented in our daily lives in both direct and indirect ways, ranging from the applications on our mobile phones that we use every day, to smart security systems in our homes.

WHAT IS INTERNET OF THINGS?



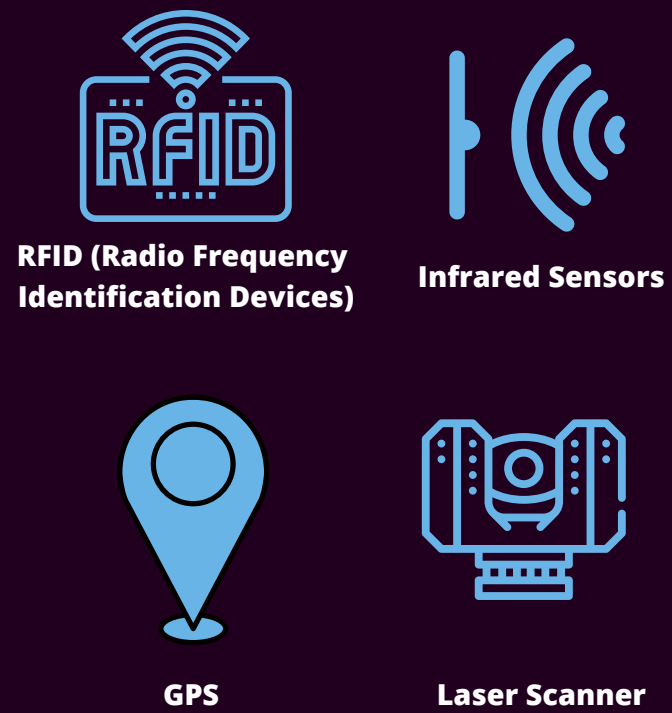
The internet of things (IoT) is the interconnection of any technologies that are connected to the internet or a network to operate, where the devices gather and share data through a network connection [Gillis, A. S. (2020)]. Internet of Things (IoT) systems are made up of sensors and machines that are linked to one another via a network. When data is delivered and received, software analyses the data and provides action, For instance, delivering the number of steps walked for the day, which is recorded using a fitness monitoring app on mobile phones. The Internet of Things (IOT) technology uses sensing devices to link all things to the Internet, allowing for intelligent identification and administration [Li, B., & Yu, J. (2011)].

[Figure 1 : Making sense of IOT (internet of things) - Retrieved from <https://www.i-scoop.eu/internet-of-things-iot/>.]

REFLECTION

Having the internet of things integrated into our daily lives significantly improves our quality of life. IoT enables the automation of many operations that require a great deal of human effort, which not only reduces workload but also saves time and ensures the greatest level of precision. We really need the internet of things in our life as technology continues to evolve and grow from time to time. Through internet of things, every device has the ability to do tasks autonomously and communicate with one another. The growth of the internet of things aids the advancement of technology by providing and leading humans to produce great ideas on how to manufacture and develop more high-tech devices. We also learned that IoT-enabled devices can run independently without the need for human interference. As a result, rather of focusing on a work that can be done automatically by a computer, humans could focus on other more essential activities that deserve their whole attention. For example, in a manufacturing factory, the production rate, development cycles, supply chain, smart metre, and product manufacture may all be automated by a machine or computer using the internet of things, which establishes machine-to-machine connectivity and thus increases long-term efficiency.

IoT INFORMATION SENSING DEVICES



EXAMPLES OF IOT

INTERNET OF SERVICES (IOS)

- Automatic cars - tesla
- Elevators with sensors



INTERNET OF MANUFACTURING SERVICES(IOS)

- Digital twins
- Real-time machine monitoring
- Smart ventilation
- Staff safety applications



[Figure 2 : IOT IN MANUFACTURING: - Retrieved from <https://www.machinemetrics.com/blog/iot-in-manufacturing/>.]



[Figure 2 : IOT IN MANUFACTURING: - Retrieved from <https://www.machinemetrics.com/blog/iot-in-manufacturing/>.]

INTERNET OF PEOPLE (IOP)

- Smart home appliances
- Heart rate tracking sensors
- Mobile phones
- Cable TV boxes

