

Can IoT (Internet of things) be the future?

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If someone says that they can control their air conditioner, home lights, refrigerators and other home appliances using only voice commands on an audio speaker, person from a non-technical background might have a lot of questions and even might not believe until given a demo, but we as aspiring engineers should definitely know what the person is saying is possible and the reason is IoT (Internet of Things). Does it ring a bell in your head?

Some of you might know what IoT means and stands for but some of you might have their doubts as engineers should always have. It is the inter-networking of physical devices, vehicles (also referred to as "connected devices" and "smart devices"), buildings, and other items embedded with electronics, software, sensors, actuators, and network connectivity which enable these objects to collect and exchange data. Let me give you a simple example, If in the morning after leaving the house in a hurry you forget to turn off your lights and AC, and you don't have the time to go back and switch it off, it can be done easily just by using a voice command on a particular app synced with the Wi-Fi at your place.

The term "Internet of Things" was coined by Kevin Ashton of Procter & Gamble, later MIT's Auto-ID Centre, in 1999. The concept of a network of smart devices was discussed as early as 1982, with a modified Coke machine at Carnegie Mellon University becoming the first Internet-connected appliance, able to report its inventory and whether newly loaded drinks were cold. The concept of the IoT became popular in 1999, through the Auto-ID Centre at MIT and related market-analysis publications. Radio-frequency identification (RFID) was seen by Kevin Ashton (one of the founders of the original Auto-ID Centre) as a prerequisite for the Internet of things at that point. Ashton prefers the phrase "Internet for things." If all objects and people in daily life were equipped with identifiers, computers could manage and organise them. Since then there have been various advancements in the IoT industry. As of 2016, the vision of the IoT has evolved due to a convergence of multiple technologies, including ubiquitous wireless communication, real-time analytics, machine learning, commodity sensors, and embedded systems.

This means that the traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling IoT. When asked, Darina Onoprienko, program manager at Next Big Thing (NBT) if Germany (where her company is based) is good place for IoT, she answered "If you look at Industry 4.0, there are a lot of manufacturing processes which can be optimized. Germany is basically the "Face of industry 4.0". But we are not there yet. Right now, Germany is mainly focusing on transportation, energy, health and smart building. In these sectors alone there is a huge need to use innovative technology and we, definitely, need IoT to bring these industries forward. Moreover, Germany has a strong IT hub developed by research institutions, developed in universities. Our idea is to commercialize the results of their R&D." IoT is one of the major growing technologies all over the world, and we as a nation are not very behind.

The Government of India is investing to accelerate and take advantage of the benefits of IoT in domains such as smart cities, water sustainability & quality, environment, health, waste management, agriculture, and manufacturing. India is also trying out IoT based irrigation systems for more efficient water usage. For example, using hundreds of sensors to measure water content in the soil or monitoring the weather to adjust watering when rain, extreme heat or high winds are expected.

According to trade pundits, there will be nearly 20.8 billion devices on the Internet of things by 2020. So we as pure electronics domain students should look at this technology as a definite career option. Who knows, we might be the one to bring the next big thing in IoT.