ABA Engineering Academy Continuing Educational Series: "The World of Acronyms"

It seems that over the years we have turned into an "Acronym Society". New ones appear almost every day. We in the technical arena have more than our fair share especially when you factor in the IT and wireless areas. More often than not when I read an article, most of the time is taken up by trying to figure out what the acronyms mean.

While reading one the other day about the upcoming change to 5G, I was hit by several new ones. Most engineers are aware of what 5G is, but just in case you haven't been keeping up….

5G is the coming fifth-generation wireless broadband technology. According to a post from PC World "5G is a new network system that has much higher speeds and capacity, and much lower latency, than existing cellular systems. These networks will use a type of encoding called OFDM, which is similar to the encoding that LTE uses."

As a side note OFDM is what we use in HD Radio transmission and also will be the new transmission standard for ATSC 3.0.

It will provide better speeds and coverage than the current 4G. 5G operates with a 5Ghz signal and is set to offer speeds of up to 1 Gb/s. The signal technology of 5G has also been improved for greater coverage as well as spectral and signaling efficiency. These improvements stand to further enable changes like pervasive computing and the Internet of Things (IoT).

Well here we go again……

Pervasive computing, also called ubiquitous computing, is the growing trend of embedding computational capability (generally in the form of microprocessors) into everyday objects to make them effectively communicate and perform useful tasks in a way that minimizes the end user's need to interact with computers. Pervasive computing devices are network-connected and constantly available.

We see this already in the form of security cameras, thermostats, garage doors, home appliances, door locks and we could keep going but lets look at the other acronym "IoT".

IoT is not the same as the output tubes used in present day television transmitters. The television tube is labeled IOT (inductive output tube) not IoT.

In our case IoT stands for Internet of Things. This is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. A thing, in the "Internet of Things", can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low -- or any other natural or man-made object that can be assigned an IP address and provided with the ability to transfer data over a network.

Kevin Ashton, cofounder and executive director of the Auto-ID Center at MIT, explains the potential of the Internet of Things: "Today computers -- and, therefore, the internet -- are almost wholly dependent on human beings for information. The problem is, people have limited time, attention and accuracy -- all of which means they are not very good at capturing data about things in the real world. If we had computers that knew everything there was to know about things -- using data they gathered without any help from us -- we would be able to track and count everything and greatly reduce waste, loss and cost."

The development and implementation of 5G and IPv6 (with its huge increase in address space) is an important factor in the development of the Internet of Things.

As Joe Kenda from Homicide Hunter would say, well my my my! Now that we all have a headache think I will go feed my cat, IPad. Yep his name is IPad since he plays games on the IPad. Caught him yesterday trying to open a twitter account.