"I o T" AND ITS HISTORIC GROWTH

Various agencies and experts have come up with varied definitions of 'Internet of Things' or "IoT" as we are getting to learn more about it. While a handful of experts termed this technology a 'system', others called it a medium. Few experts call it an innovative technology while the rest of them included various functions of connected devices in grouping them together as "I o T".

One thing remains certain and that is 'Connectivity'. Automation is bound to take precedence over routine functions in both consumer and industrial environments.

Machinery on the factory floor shall become more efficient with the help of embedded sensors reporting possible breakdown before it happens. It will save time, productivity, and precious resources.

First Industrial Revolution came in the shape of Steam Energy in the early 19th century. Electricity brought us the Second Industrial Revolution, with a tremendous boost in productivity. Assembly Lines became a buzzword on the factory floors boosting mass production within much shorter time-frame.

Third Industrial Revolution of the early 1970s saw Electronics and Information Technology gaining ground. Computers became a necessity for survival in less than 10 years. Miniaturization brought this technology to the general household in ways nobody dared imagine.

The four-block long computers of the early electronics era have now put computing power in the palm of our hands. Microchips embedded in our Smart phones are a thousand times faster than

the massive ENIAC computers. These chips offer tremendous computing power and much larger storage capacity.

Imagine how the public would have reacted those days, if someone predicted the advanced technology currently gaining ground. In all probability, they would have called him/her a lunatic in disbelief. Yet, it did happen. This change continues to gain further ground as modern sensors and microchips can do thousands of more calculations so much faster.

Just 24 years ago, around the same time when the Internet came into public domain, its speed was a meager five Mbps. Home and Small Business Computers connected via Dial-Up connection of a land-based phone line. Even that slow speed used to suffer from interruptions due to traffic demands during business hours.

Personal Computers with only 1 GB Hard Drive and Floppy Disk slot sold for $7,000.00 to $8,000.00. Extra 1 GB HDD cost was $250.00. Technicians charged $50.00 to add extra Hard Disk Drive to a Personal Computer. This is what I paid, for the first computer for my only child, back in 1992 when he was barely seven.

We have come a long way over the last 3 decades. It is unbelievable, but I find relief in the happy developments taking place all around us.

Education, especially higher education, is not the domain of the rich anymore. Anyone can pursue higher studies online and get Degree or Diploma from any of the finest universities around the world, at a nominal cost. They only need a computer with internet connection and the willingness to learn.

Over the last few years, the Internet as we know it, has found new niches for itself. This technology has given a new meaning

to connectivity and relationships. The Internet, home computers and the latest electronic gadgets, including tablet computers and smart phones, helped bridge gaps between far-off relatives and acquaintances. All these devices, put together, helped create Social Media by building connections without borders.

The Fourth Industrial Revolution connects machines and manufacturers together in a web. Constant data produced at either end of the connection can help figure out possible trouble spots and raise alarms. This innovative technology shall definitely prove itself a huge blessing in disguise. It will help cut both production losses and recurring maintenance cost at the same time.

Industry 4.0 has brought us to 24/7/365 production age. A combination of smart devices can run the entire industry without interruption. Prominent among them are Augmented Reality & Virtual Reality (AR & VR), Wi-Fi, Blue-tooth, smart phones, OHMD (Optical Head Mounted Display) and PCs/Tablet Computers.

Engineering challenges have become seamless thanks to Open Network Platforms. Monitoring, analysis, and automation have blended. The information generated in the process becomes digital. This process includes the seamless convergence of four of the most powerful forces, that of social, mobile, big data and cloud.

Advanced companies are investing heavily in efficiency rather than simple growth orientation. They realize the significance of efficiency as the essential catalyst for growth. These two go together, hand in hand.

In the above scenario, 'Internet of Things' is slated to play a crucial role. We need to accept and embrace it with open arms and happy feelings. If we did not, we shall lose. The technology,

the revolution, the system, and the process are all in place to stay and grow, whether we like it or not.

Only 10 years ago, there was no Social Network worth its name. No one could predict the future where you would communicate with large groups like that. Someone could garner fan following of hundreds, thousands, hundreds of thousands and even millions across the Globe. It was beyond any sane person's wildest dreams that your short video of an interesting story on YouTube could go viral within minutes and viewed by millions.

Marketing gurus had no idea they could present their wares for pennies-on-the-dollar to millions across all continents. Social Media made it possible, thanks to the Internet.

Hundreds of thousands of lives get saved by Personal Emergency Response Systems like Life Alert in the U.S.A. every year. The same holds true in many other parts of the world as well.

The above example makes it abundantly clear that the speed of communication is definitely crucial for survival whether it concerns man or machine. Delays could mean disaster. This is exactly where 'Internet of Things' or "IoT" comes into play in all its glory.

What can be better than advance warning of an impending trouble: Prior Preparedness! This is exactly what 'IoT' has brought to today's fast growing e-commerce platform. All other related factors become interconnected.

We need food to survive. The farmer needs to keep up with the demand and produce enough to feed those dependent upon his ability. He needs to make sure that his produce is top quality, free of harmful pests, pesticides, fungicides, and fertilizer residue before delivery to market.

The moisture content in food grains is supposed to be ideal for enough storage life. Nourishment needs to be at the highest levels at all times. The farmers used their individual knowledge, gained over the years, to address these issues. Their actual, on-the-job training and experience determined the quality of their produce. This created less than ideal situation, as there was no uniform gauge in place to find the true standards resulting in unnecessary wastage and/or loss.

With sensors embedded all across the farm, taking care of all these equations is a breeze. All the necessary calculations become easier to handle by sensors many times over, each day, and through all weather patterns. The sprinklers will not activate unless the moisture level has gone down, below desired levels. Same thing holds true for all other crop treatments, and that helps make sure the final produce is of the highest quality possible.

Advances made in medical field help specialists keep an eye on their patients' health through a multitude of means. They can now offer customized treatment rather than one size fits all. This is only the beginning. We have yet to see many more changes for the better where life expectancy will increase. Healthy living beyond 100 years of age will be the norm rather than an exception.

We have looked into direct gains in higher education, engineering, manufacturing, agriculture, and medicine. Our study could cover much more industries but the fact remains the same: Do you believe in the power of 'Internet of Things' (IoT) or not? If you did, then above examples should suffice to create an awakening. If not, we sincerely hope no harm comes your way.

Put your thinking cap on, JOIN US NOW and embrace the change! While others wonder what happened, you will enjoy the top slot on the Victory Podium!