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SECURITY WITH IOT



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When we say 21st century is technologically more advanced, we say this not only in the context of human evolution but also in the context of communication, where a typical connection is not only restricted to people instead it has extended up to people-thing & thing-thing. With this vast panorama of thing-thing interaction, IoT has become an emerging topic of research and invention.

For those who don't know what is IoT, the Internet of things is a connection of devices via a common network to transfer data and information. In 2013, it had been estimated that the number of IoT devices had exceeded the human population by 13 billion. IoT in itself is a vast term that is closely associated with layers. Hence, security is provided via these 4 major layers.

Perceptual layer (physical layer) is the most crucial layer of security where the hardware connection is established. Network layer establishes the network between nodes to communicate with each other which also cover the important aspect of Integration where the network integrates the node connections thus established. Another layer is the support layer which needs lots of architectural layer security including cloud computing, encryption of nodes and connections, smart computing, etc to give strong support to ToT (Transfer of Technology) for communication purposes. Following the support layer is the application layer that is based on user-end where two functions are given top-most priority. One being authentication and key agreement of information and device safety, and the other being user privacy protection where every piece of information is encrypted and made private.

But, now the question that comes to mind is - do all these layers provide our data and devices complete security? Well, when it comes to security, the focus has always been on private and professional data of the user which, for sure, comes under the category of sensitive data.

Major security issues are indeed important and should be corrected with regard to user mandate.

The hype of IT has attracted masses, especially cyber-criminals who are constantly on the look-out for sensitive data to steal in order to misuse it. All of this, in turn, affects security, the result being IoT devices being more prone to cyber-attacks and vice-versa. Increasing security functions in devices often lead to a hike in hardware costs because complex designs need more battery backup. This is why secured devices are not affordable to everyone. The solution of this could be thought, to invent new power sources which will be affordable to one and all or standardising security functions.

Data storage is also a big problem regarding the security of IoT devices. Actually, storing particularly is not an issue as billions of bytes can be stored online, but backing up the same data in secure locations under secure protocols is still problematic when it comes to IoT.

These security issues are no doubt, a threat for the user but at the same time, it is the responsibility of the user as well to check and verify what they are buying and to always invest in those devices which ensure secure connections and overall security. For example, a user should visit only those websites which follow HTTPS protocol and SSL protocols, along with being careful in sharing access and passwords related to his or her IoT devices.

Security is an important issue when it comes to IoT devices and hopefully, as IoT evolves we may overcome most of its drawbacks and strengthen its security features in the future.

- TANYA SHARMA
BCA II YEAR I SHIFT

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FUN FACTS

- By 2020 around 75 billion IoT devices will be surrounding humans.
- Around 94% businesses who adopted IoT have seen a return on their investment in some way.
- The first IoT device was connected to the Internet in 1981, even before WWW browser was launched.
- Scientists are developing "Powerless" IoT sensors which will be powered by heat, light, vibrations or radio frequencies since traditional IoT sensors have higher electricity requirements.
- As per a research by Forrester last year, 23% global enterprises opted for more IoT solutions more compared to 14% small businesses.
- As per Altman Vilandrie & Company, a consulting about 200 IT companies had an IoT related data breach.

-GURJEET SINGH
MCA

THE IOT HYPE

- A PERSPECTIVE



Ideally, this article should start with something like - what is the Internet of things? Rather, this article will focus on and question the underlying agenda- WHY and HOW you know about IoT? Since, for me, it is difficult to digest as to how IoT became a revolution now, almost instantly instead of being just another invention.

So I jumped and the deeper I dived, the sooner I realized that first of all, it's a global contribution, even though popular belief has made Kevin Ashton - the 'God'. And second of all, the blessing in disguise for me is that there is no conspiracy-riddled theory to unveil like the invention, itself, was stolen from Kevin by the government or IoT was actually a project initiated by the aliens. No conspiracy whatsoever here!

In reality, it became trendy quite 'smoothly'. I'll jump to that but first let me introduce the concept of "Flowing River". There is a godly 'river' and also a 'Washer'. With regard to India, let's consider our beloved PUBG Mobile - 'Smart Washer' and the JIO network - the 'Holy River'. I mean to say that there was no chance that PUBG could have survived without JIO. But again the point is that 'PUBG never paid-JIO'. That's exactly what happened with IoT.

The 'push' given to IoT was actually automatic!

Before IoT's use in any product or service was just at the beginning stage most people thought -"I would love to have my alarm clock to activate my coffee maker." While every company mused-"Can we even do that?" Luckily IoT had answers to this very dilemma of both the consumers and the tech companies. And that's it! The first time I learnt about IoT was when the hype in India was high enough but not as it is today. Today, parents, without even knowing much about IoT, are constantly telling their children to take up any diploma, any course, any degree and just about any certification related to IoT because popular belief dictates this as the 'next big thing'.

The concept was not new even before. IoT has been around for decades actually but it got the limelight quite recently.

Now wait, THINK for a minute and ask yourself - what are we achieving by all of this? Although, it's just my personal opinion but don't you think we are ruining the whole purpose of IoT and IoT related devices by its excessive use in all things, in all fields - tech-based or otherwise?

Imagine a world with actually no work to do, a universe based on the common notion of -no point in using your brain because you created something so smart- is, in fact, so dumb! Not worrying about useless things is one thing, but leaving every chore, all analysis and research in the hands of machines will never be of any help either. In the end, I would like to conclude IoT might just backfire, so - (Don't) Just 'Think'.

- KUSHAGRA GUPTA
BCA 1 YEAR