



Prahladrai Dalmia Lions College
of Commerce & Economics

E-MAGAZINE



D'LITA

Building Leaders in Information Technology



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“Food, Clothes, Shelter and
yes Technology has become
our basic needs of life ”

*Lion Sharad S. Ruia
Chairman, Governing Council*



“Technologies will not
replace, it will enhance
humans”

*Lion Kanahaiyalal G. Saraf
Hon. Secretary, Governing Council*



“Days aren’t far when
people would start using
Ctrl, Alt, Shift, Delete
as their language”

*Dr. N.N. Pandey
Principal*



“Technology is all about
innovation, changes and
adaption...choice is yours”

*Prof. Subhashini Naikar
Vice Principal, Degree SFC*

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Editor's Note

“We Cannot Always Build the Future for our youth, but we can build our youth for the future”....*Franklin Roosevelt*

The D'LITA Magazine team works to bring out the blog of B.Sc.I.T. of Prahladrai Dalmia Lions College of Commerce & Economics for IT lovers.

Each year, our team of editors, designers, photographer in addition to generating creative content, work extensively to report on events related to “I.T. in Today's World”. The current theme for the blog is “Internet of Things (IoT)”. The Internet of Things has the potential to change the world just as the Internet did.

The blog displays various topics such as Future of IoT, Working of IoT, etc. by our college students and academicians.

The blog continues to expand its reach to achieve its vision of being a truly representative student publication. We have tried to compile maximum eBooks related to B.Sc.I.T. syllabus in our blog. This blog also allows the viewer to express their view on any of the article. The team hopes to build on this ethos just as much during the upcoming academic years.



Prof. Rupali Mishra
(B.Sc.I.T. Co-ordinator)

THE IOT MEGA TREND



ARTICLES



FUTURE OF IOT

Ready or not, the Internet of Things is taking over the world. Every day more and more objects have some sort of network connection: from coffee makers to security cameras, from air quality sensors to connected cars, there isn't a single area of our life that won't be affected by IoT devices in the next decade.

In fact, technology giant Ericsson predicts that in 2018, there will be more IoT gadgets than mobile devices.

This brings us to the fact as to what exactly 'Internet Of Things' is?

Internet of Things (IoT) refers to devices or objects that are connected to the Internet, like your smartwatch, Fitbit, or even your refrigerator. These devices are able to collect and transfer data via the Internet, contributing to our big "DATA" world.

If statistics are to be believed

1. 87% of the people, have not heard of the term, 'Internet of Things'.
2. ATMs are considered some of the first 'IoT' devices, and went online as far back as 1974.
3. Back in 2008, there were already more objects connected to the Internet than people.

4. This year in 2018, we will have 4.9 billion connected things due to IoT.
 5. Experts predict that by 2020, the number of Internet-connected things will reach or even exceed 50 billion.
 6. In 2016, because of IoT, over 1.4 billion smart phones were shipped and by 2020 we will have a staggering 6.1 billion Smartphone users.
 7. The IoT will connect many of the devices we have in our homes, from smart Air Conditioners to smart Refrigerators and Smart TV's.
- The near future, billions of pieces of equipment will be connected to one another – everything from the yogurt container, that reminds you to eat its contents, to the smart city, where data is collected and analyzed in real time, so that traffic flows better.
- Well, No matter whether it's 28, 32, or 33 billion – as the number of networked devices and sensors will increase due to IoT, they will create an ever-growing, unparalleled flow of data, contributing to boundless imaginations and infinite opportunities.

*Viraj Mane
SYBScIT*

Internet of Things, or IoT as it is popularly known, has gone on to become one of the hottest catchwords in the tech industry for 2017. For anything to become a catchword, three things should be in place - applications, jobs and global recognition. IoT over the last few months has clearly met these criteria. There are uncountable number of IoT applications floating around in the world. Consequently, jobs are growing and companies-big and small-are implementing IoT for the long term.

Growth of IoT

The oldest and the most humble beginning of IoT probably lies in Bluetooth technology, that leverages the power of short-range radiowaves to transmit data to and from a device.

Today, IoT is the technology that lets you connect everything from your home security system, lighting, music, television – all from the central processing unit through your Smartphone. IoT as a technology is only bound to grow in the months to come with more and more devices make way into the ecosystem.

The Tech Behind IoT

While from the outside, IoT might seem like a simple, straightforward concept, there are many technical layers to it. In layman terms, IoT is a web of physical objects that are connected to the internet and controlled remotely. This, in turn, involves multiple network protocols, frameworks, and languages.

Where Are The IoT Jobs ?

IoT has spreaded into pretty much every job role remotely connected with IT, but you need to acquire specific skills on top of your regular tech competency in order to ride the IoT career wave. Some of the highest paying and most sought-after job titles these days are; IoT Solutions Architect, IoT Cloud Architect, IoT Systems Engineer, IoT Security Developer, among others.

Future of IoT

When we mention IoT, we are staring at something that will add multiple billions to the global technology industry in less than three years. It is also estimated that the three big cats of the industry – manufacturing, logistics, and utilities – will contribute to 50% of all IoT innovation during this time.

*Rutvik Poojary
SYBScIT*

Application of IoT are not hard to find. Smart city clearly stands out, ranking as highest Internet of Things - including environment monitoring, video surveillance and traffic management.

Data sets grow rapidly - in part because they are increasingly gathered by cheap and numerous information-sensing Internet of things devices such as mobile devices, aerial (remote sensing), software logs, cameras, microphones, radio-frequency identification (RFID) readers and wireless sensor networks.

Internet of Things(IoT) is highly impacting on data storage - there can be no single method to deal with the data generated by things, not least because there is such a wide variety of data generators and data types.

The Internet of things (IoT) has become a buzzword in today's world. It is the network of physical devices such as heart monitoring implants, biochip transponders on farm animals, cameras streaming live feeds, automobiles with built-in sensors, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and network connectivity which enables these objects to connect, exchange, analyze and present data.

The IoT generates a large amount of Big Data as a result of regular streaming and this in turn puts a huge strain on system and Internet Infrastructure. As a result, it forces IOT users to find solutions to minimize the pressure and solve their problem of storing large amounts of data.

Cloud computing is an information technology (IT) paradigm that enables unlimited access to shared pools of system resources and store, manage, and process data.

Cloud computing and Internet of Things (IoT) are two very different technologies that are both already part of our life. Their adoption and use are expected to be more and more pervasive, making them important components of the Future Internet. A novel paradigm where Cloud and IoT are merged together is foreseen as disruptive and as an enabler of a large number of application scenarios

Impact on Big Data

Managing and extracting value from IoT is the biggest challenge that company face. The data that generate by IoT required a lot of storage and it contain same amount of data risk- raw devices, communication protocol and various types of data - and this carries internet data security risks.

Daily increasing number of devices grows into billions, big storage of transaction from large number of data generating devices are limiting many big data center.

*Rohit Vishwakarma
SYBScIT*



IOT ON BIG DATA

The role of cloud in the Internet of Things

- **Remote processing power:**

Using IoT everything will eventually be a smart device, putting new demands on raw processing power. And as miniaturization grows and 4G connectivity becomes even more widespread, the cloud will come to the rescue, allowing developers to offload processing to cloud computing services.

- **User security and privacy:**

The IoT, despite having its reach extend to every aspect of our lives, could actually sidestep security issue only because of cloud.

- **Smoothens inter-service and inter-device communications**

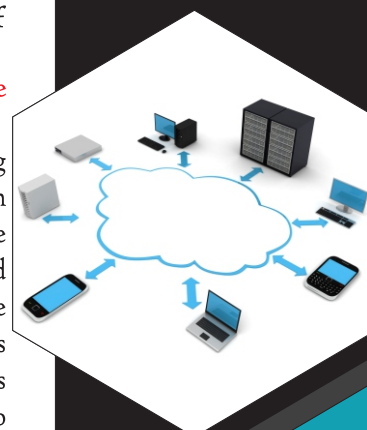
IoT is about services and devices all talking to each other with different standards which is one of the major limitation. But with the Internet of things, the cloud as mediator and communication facilitator will vanish these worries. Powerful APIs for app developers and product makers, cloud communications that are plug-and-play, seamless linking to our smartphones... The cloud makes this possible.

Cloud Computing as a complement to IoT

IoT and Cloud computing complement and complete each other requirement.

A basic challenge for producers of IoT applications is to store, process and interpret the vast amount of bulky data which is gathered by the sensors. This problem will increase significantly when we start utilizing applications with multiple embedded sensors.

*Pranay Das
FYBScIT*



IOT AND CLOUD COMPUTING

ARTICLES

WORKING OF IOT



ARTICLES



BENEFIT OF IOT

With technology becoming ever so advanced, and new ways of life kicking in with passing time, there is indeed no stopping the world because thanks to the IT sector, India has indeed successfully managed to become developed country.

- The working of IoT is rather simple and obviously reliable as it tracks and identifies things, collects and processes the data to detect the alterations in the physical item followed by processing and allowing the smallest of things to have the ability to connect and interact.
- The Internet of Things consists of all the Internet-enabled devices that send, receive and act on data they acquire from their users and surrounding environments.
- The potential of IoT is vast in terms of Aviation, Power, Healthcare, rail etc. since that will in turn also increases the value both nationally and globally. It not only will give better performance, but also reduce the costs, leave more scope for

innovation and bring to the nation and added source of income with made easier.

- Applications of IoT are mainly including the likes of manufacturing, home care, media, medical, energy management, transportation and a lot more.
- IoT is going to bring a fresh breath of air to the current monotype and bring about a revolution like never before. In fact, IoT will help not just in connecting things to the internet, but also in actuation abilities. Additionally, they could gradually help do things, and not just sense them. Having said all of that, there also lie a lot of challenges in IoT, one of the major one being how there is difficulty in standardization, scalability and the software complexities. Others also include wireless communication issues, power supply defect, interpretation and data volumes etc.
- Putting the challenges aside, there also is lot of criticism that it had received owing to issues related to privacy, design, security, social control, social impact, etc.

Sanchita Jhunjhunwala
TYBMM

Internet is playing an immense role in today's high tech world. Internet is operated way varies computers inter depended. It is mostly used way too much than just acknowledging yourself. Internet is a cure to mankind but is also a curse. People may user for it for self benefit which is not rational. Whereas some may use it for teaching others a new desire or dream that they can believe to achieve. Internet is a way for connecting people across the whole world.

- All of the important as well as basic things like an examinations or online studies are now possible with the help of internet. Mostly all of our back up are stored in a space age technology called the Cloud for examples our photos, files, etc.
- Many people use the World Wide Web to access news, weather and sports reports, to plan and book vacations and to pursue their personal interests. People use chat, messaging and email to make and stay in touch with friends worldwide, sometimes in the same way as some previously

had pen pals.

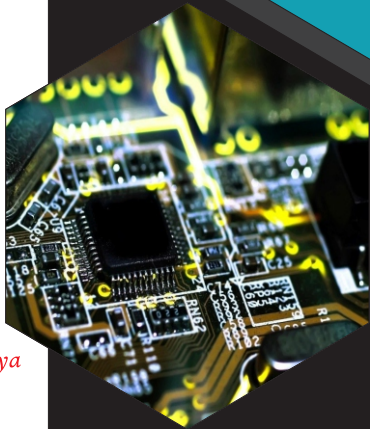
- Social networking websites such as Facebook, Twitter and Myspace have created new ways to socialize and interact. Users of these sites are able to add a wide variety of information to pages, to pursue common interests, and to connect with others. It is also possible to find existing acquaintances, to allow communication among existing groups of people.
- The internet allows computer to remotely access other computers and information stores easily from any access point. Access may be with computer security, i.e. authentication and encryption technologies, depending on the requirements. This is encouraging new ways of working from home, collaboration and information sharing in many industries. An office worker away from their desk, perhaps on the other side of the world on a business trip or a holiday, can access their emails, access their data using cloud computing, or open a remote desktop session into their office PC using a secure virtual private network connection.

Drashti Patel
SYBMS

Arduino is an open-source for all electronic device based on easy-to-use hardware and software. Arduino boards are able to read inputs - by using many types of Arduino sensors such as light sensor, sound sensor ,fire sensor ,uv sensor and many types of various sensors. Your board can do any thing by sending a set of instructions to the microcontroller on the board. The Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing. Arduino board is adapted to new projects and challenges, distinguishing its offer from simple 8-bit boards to projects for Internet of Things, we are able, 3D printing, and embedded including high-end electronic toys and devices.

All Arduino boards are completely open-source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is open-source, and it is growing through the contributions of users all over the world. Over the years Arduino has been the brain of many projects, from everyday objects to complex scientific instruments such as Quadcopters, Hexacopters, Octocopter, Helicopters, 3D printers, etc. A worldwide community of makers - students, hobbyists and programmers have gathered around this open-source platform, their contributions have added up to an incredible amount of accessible knowledge.

Vedant Pandya
FYBScIT



GADGETS OF IOT

The number of things that are connected to the Internet is increasing with reference to an increase. This has led to defining a new conception of Internet, the commonly called Internet of Things. Internet of Things ecosystems are unaffected, on the one hand, of so called elegant objects, i.e., tiny and highly constrained physical devices in terms of memory capacity, calculation capability, energy autonomy, and communication capabilities. On the next hand, Internet of Things is made up of recognition tags and codes that allow identifying a specific thing in a unique and global way. Several technologies are enabling these types of things. Nowadays, sensors, actuators and devices (so-called things), are connected to the Internet through gateways and platforms such as Supervisory Control and Data Acquisition platforms (SCADAs), panels, and brokers. These gateways and platforms break the end-to-end connection with the Internet. For that reason, this initial approach is defined as an Intranet of Things (IoT) requires both architecture and products that allow for the extension of Internet technologies, in order to reach a Future Internet of Things, Services and People.

The second key challenge is to guarantee security, privacy, integrity of information and user confidentiality. The majority of the IoT applications need to take into considerations the support of mechanisms to carry out the authentication, authorization, access control, and key management. In addition, due to the reduced capabilities from the constrained devices enabled with Internet connectivity, a higher protection of the edge networks needs to be considered with respect to the global network. Security is a wide concept which covers everything from authenticity (ensuring that the end-user is who is claimed to be), authority (ensuring that the end-user is allowed to perform the requested action), integrity (the data received is exactly the same data transmitted), and confidentiality (communication is not understandable for intermediary users, even when an intruder is in the network). These concepts are satisfied through a set of protocols, algorithms and cryptographic primitives.

Akshay Patel
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IRRIGATION IN IOT

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