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Internet of Things-Society at the Tip of an Iceberg

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Abstract : *Over the last decade Internet has made significant impact in our economies and societies by bringing in remarkable communication and networking infrastructure. The world-wide web has been a major driver of global information and media sharing.*

The Internet of Things (IOT) describes a worldwide network of intercommunicating devices. It integrates the ubiquitous communications, pervasive computing, and ambient intelligence. At this point (IOT) must be seen as a vision where "things", especially everyday objects, such as, nearly all home appliances but also furniture, clothes, vehicles, roads and smart materials, and more, are readable, recognisable, locatable, addressable and/or controllable via the Internet.

The primary aim of this study was to understand the actual area of improvement in Patna and the awareness among the people. To achieve this, questionnaires were distributed.

Keywords*: IOT, IOE, Smart Economy, Smart People, Smart Governance, Smart Mobility, Smart Environment, Smart Living, citizens.*

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Introduction :

The internet of things (IoT), is the internetworking 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 that enables these objects to collect and exchange data. In 2013, the Global Standards Initiative on Internet of Things (IoT-GSI) defined the IoT as "the infrastructure of the information society." The IoT allows objects to be sensed and/or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit.

The Internet of Things (IoT) is not a futuristic technology trend: It's here today, and it starts with your things — your devices and sensors, the data they produce, your cloud services and business intelligence tools. That's the Internet of Your Things. By implementing a strategy to capitalize on the Internet of Things, you can stop just running your business and start making it thrive.

Why IOT

1. **Infrastructure Management :** Infrastructure Management is useful for monitoring and tracking if there is any problem in urban or rural Infrastructure such as bridge, railway or etc. to diminish and reduce risk of dangerous and any failure in strength would be tested and alarm as soon as possible to repair it.
2. **Industrial Applications :** Industrial Applications investigate the quality of product in order to real-time optimizing to have a good marketing such as who are most interested to which product and how this product can find marketing with which tiny change.
3. **Energy Management :** Energy Management are categorized with systems which are connected to internet and with some sensor to reduce power consumption such as cloud based, remote control for oven , lamp and etc.
4. **Medical and Healthcare Systems :** Healthcare Systems helps to improve patient state better by monitoring and controlling their heart rate or blood pressure or even for their diet. Smart tablet which show us how much does with which gradient can helps patient to get better.
5. **Building and Home Automation :** It is related to everything in home which have the potential to monitor and remote control such as air condition , security lock lightening, heating, ventilation, telephone system, TV to make a comfort and secured life.
6. **Transport Systems :** Transport Systems makes regular city and environment without less employer for police or station such as automatic configuration in traffic lights, smart asking , traffic camera to detect which road has heavy traffic and offer automatically less crowd road, or smart camera which fine driver in high speed.
7. **Large Scale Deployments :** There are cities where are almost complete smart cities with wide range of using IoT and covering wireless ex - Santander, Spain and New York , US.

How IOT works

Internet, things, Internet of things, Internet of Everything! These are some of the buzzwords you may have been hearing, reading & very likely talking about endlessly.

These are more than just keywords; IoT (Internet of Things) is a technology concept and/or an architecture which is an aggregation of already available technologies.

Sensors & Sensor technology – They will sniff a wide variety of information ranging from Location, Weather/Environment conditions, Grid parameters, Movement on assembly lines.

IoT Gateways – IoT Gateways, as the name rightly suggests, are the gateways to internet for all the things/devices that we want to interact with.

Cloud/server infrastructure & BigData–The data transmitted through gateways is stored & processed securely within the cloud infrastructure using Big Data analytics engine.

End-user Mobile apps – The intuitive mobile apps will help end users to control & monitor their devices .

IPv6 – IP addresses are the backbone to the entire IoT ecosystem.

Telecommunications industry

IOT will create the possibility of merging of diverse telecommunication technologies and create new services. An illustrative example is the use of GSM, NFC (Near Field Communication), low power Bluetooth, WLAN, multi-hop networks, GPS and sensor networks together with SIM-card technology.

Medical and healthcare industry

IoT will have many applications in the healthcare sector, with the possibility of using the cell phone with RFID-sensor capabilities as a platform for monitoring of medical parameters and drug delivery.

Pharmaceutical industry

For pharmaceutical products, security and safety is of utmost importance. In IoT paradigm, attaching smart labels to drugs, tracking them through the supply chain and monitoring their status with sensors has many potential benefits.

(IoT) in education

Technology has changed the educational landscape with the use of tablets in the classroom to the proliferation of open universities. From K-12 up to postgraduate programs, the IoT has the potential to impact every aspect of student learning.

ID cards and wristbands allow educational organizations to store the last-known location of a student or visitor, helping to ensure the right people are accessing the right areas on campus.

IOT application area.

The IOT has numerous applications in healthcare, from remote monitoring to smart sensors and medical device integration. It has the potential to not only keep patients safe and healthy, but to improve how physicians deliver care as well. Healthcare IoT can also boost patient engagement and satisfaction by allowing patients to spend more time interacting with their doctors.

For example, the hospital uses sensors for security purposes. Newborn babies are given wristbands, allowing a wireless network to locate them at any time. If a newborn is taken too close to an exit door without being signed out, elevators will stop and exit doors will lock. And in the neonatal intensive care unit, nurses receive critical alerts on hospital cell phones about their patients' medical conditions, including heart rate and oxygen changes that sensors have detected, allowing them to get to patients' bedsides more quickly.

IOT methodology and framework with improvement in existing process.

Auto insurance industry

The first example we are going to look at is from the auto insurance industry. Recently all major auto insurance companies have started offering their customers additional discounts based on their driving performance. The customers are required to install a tracking device for a specified period of time. Once installed, the tracking device starts transmitting data to the concerned insurance company. The insurance company captures and evaluates the data until the trial period ends.

Here is an overview of the additional auto insurance discount business process. This does not include all the steps. Only main activities have been included to keep it simple.

- Customer applies for the trial
- Insurance company mails the device
- Customer installs the device
- Device transmits analytics
- Insurance company captures analytics

Challenges

- Today, connected objects are still in their early stages and there are still many challenges to be overcome before the benefits of connected objects can be fully realized. At present IOT is faced with many challenges, such as:-
- Scalability
- Inter operability
- Discovery
- Software complexity
- Data volumes and interpretation

Addressing and Tagging

The IoT should be able to tag or address about 50 to 100 trillion objects. To achieve this, the current IPv4 protocol will be insufficient. A key challenge is to agree on a common way of addressing and identifying objects.

Connectivity

When dealing with the IoT, one usually concentrates on the devices themselves. Connectivity is often missed, which is a big mistake.

Privacy concerns

One of the main concerns that the IoT has to address is privacy. The most important challenge in convincing users to adopt emerging technologies is the protection of data and privacy. Concerns over privacy and data protection are widespread, particularly as sensors and smart tags can track users' movements, habits and ongoing preferences.

Some of the other privacy risks involve the direct collection of sensitive personal information, such as, precise geo location, financial account numbers, or health information –risks already presented by traditional Internet and mobile commerce. Others arise from the collection of personal information, habits, locations, and physical conditions over a period of time, which may allow collection and inference of sensitive information.

Current status and future Prospect of IOT

To ensure that the opportunities and benefits related to IoT are global, the specific needs and potential challenges related to emerging economies must be considered. The matters discussed in the preceding issue sections are not unique to industrialized countries, and should be considered applicable to developing countries.

(a) Infrastructure Resources: Internet and communications infrastructure has spread rapidly across the developing world, yet gaps remain in ensuring reliable, high-speed, and affordable access in many countries, including for commercial and business use.

(b) Investment: In industrialized countries, investment in IoT research and product development is being driven by market opportunities for products and services.

(c) Technical and Industry Development: To what extent are researchers and entrepreneurs from developing countries involved in IOT technical development and deployment?

(d) Policy and Regulatory Coordination: Policymakers and regulators in emerging economies have made significant progress over the past 10 years to develop and adapt policies and regulations to encourage.

Advantages of IOT

- Automation of daily tasks leads to better monitoring of devices
- Efficient and Saves Time
- Saves Money:
- Better Quality of Life:

Disadvantages of IOT

- Loss of privacy and security
- Compatibility
- Complexity
- Less Employment of Menial Staff
- Technology Takes Control of Life

Survey

We conducted this survey in our college.

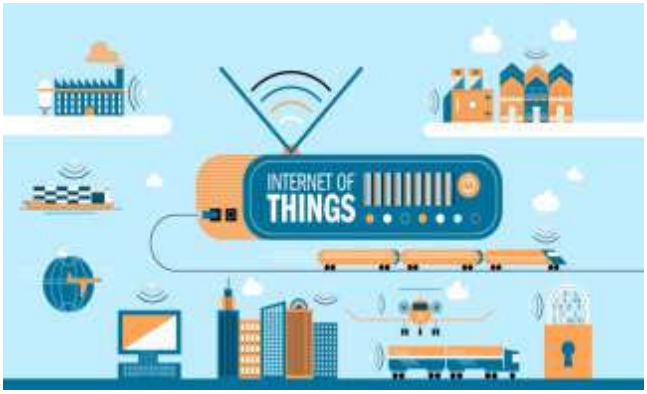
We distributed questionnaires among student and teachers. And the results are as follows

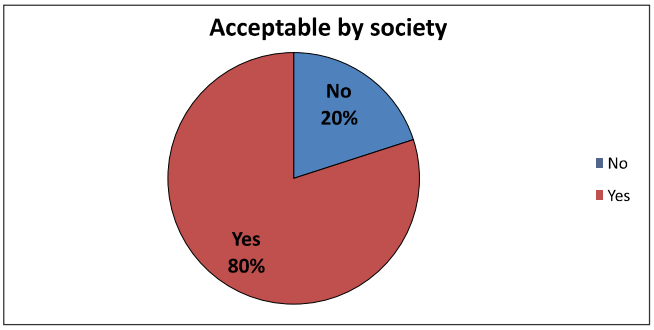
Survey that we found on the internet

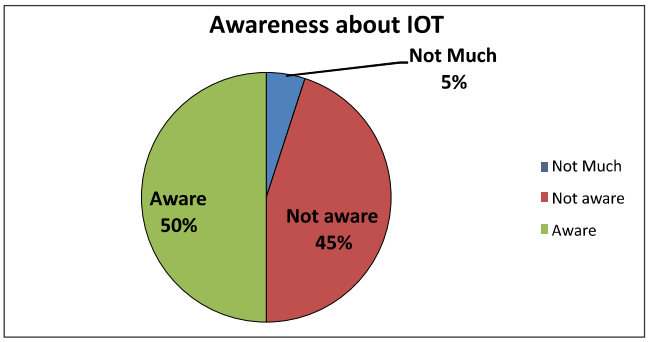
Conclusion :

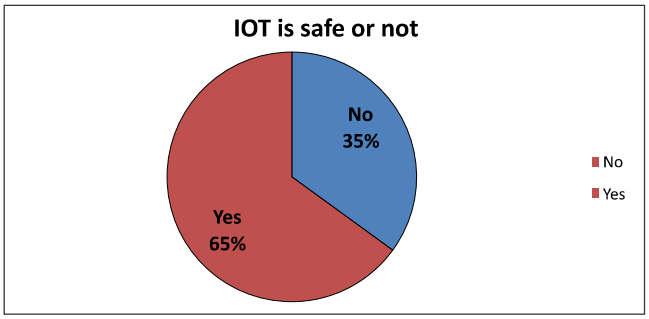
While the concept of combining computers, sensors, and networks to monitor and control devices has been around for decades, the recent confluence of key technologies and market trends is ushering in a new reality for the "Internet of Things". IoT promises to usher in a revolutionary, fully interconnected "smart" world, with relationships between objects and their environment and objects and people becoming more tightly intertwined. The prospect of the Internet of Things as a ubiquitous array of devices bound to the Internet might fundamentally change how people think about what it means to be "online".

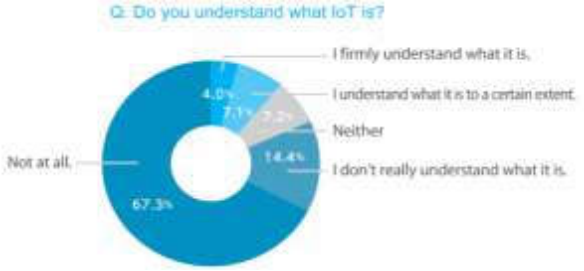
LIST OF FIGURES











References :

Book referred

Preston, Gralla (2012). How Wireless Works, Dorling Kindersley India Pvt. Ltd. (licensees of Pearson Education), Second Edition.

From Internet

https://en.wikipedia.org/wiki/Internet_of_things(17-09-2016,8:00 P.M)

http://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT

http://go.sap.com/solution/internet-of-things.html(20-09-2016,7:00 P.M)

http://chaturbate.com/toproom/?join_overlay= 1HYPERLINK "http://chaturbate.com/ toproom/ ?join_overlay= 1&tour=hr8m& disable_sound=0& campaign= kAeS3(07-10-2016"&HYPERLINK "http://haturbate.com/toproom/?join_overlay=1&tour=hr8m&disable_sound= 0&campaign= kAeS3(07-10-2016"tour=hr8mHYPERLINK "http://chaturbate.com/toproom/?join_overlay= 1&tour= hr8m&disable_sound=0&campaign= kAeS3(07-10-2016"&HYPERLINK "http://chaturbate.com/toproom/?join_overlay=1&tour=hr8m&disable_sound=0&campaign=kAeS3(07-10-2016"disable_sound= 0HYPERLINK "http://chaturbate.com/ toproom/?join_overlay=1&tour=hr8m&disable_sound= 0&campaign=kAeS3(07-10-2016"& HYPERLINK"http://chaturbate.com/toproom/?join_overlay=1&tour=hr8m&disable_ sound=0 & campaign= kAeS3 (07-10-2016" campaign= kAeS3 (07-10-2016,04:30 P.M)