Future and Challenges of Internet of Things

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Abstract— The world is growing fast in technology. Future concept is IOT (internet of things) with which automation is no longer a virtual reality. IOT connect various non-living objects(machines) through the inter connection. Internet enables them to pass the comments to the machines. It receives order and response for the comment which pass by the user. The paper presents the futures and challenges of IOT, such as technical, business, societal. Security of data being most critical factor of all. An optimistic approach IOT device are used to growth.

Keywords: Internet of Things, Cloud computing

I. INTRODUCTION

Internet of things is the networking of physical objects that contain electronics embedded within their architecture in order to communicate and sense interactions amongst each other or with respect to the external environment. In the upcoming years, IOT based technology will offer advanced levels of service and practically change the way people lead their daily lives. Advancements in Power, Medicine, Agriculture. And smart homes are uses the most of the IOT concepts to access the devices in the home.

There are fur main components used in IOT:

A. Low-power embedded system-

Less battery consumption, high performance are the inverse factor play a significant role during the design of electronic system.

B. Cloud computing-

Data are collected from various IOT devices thease data has to be stored on reliable storage servers. Massive data is used to provide the best service o the user by analysing the data.

C. Availability of big data-

IOT devices are mostly relies on sensors, especially real-time. These electronic devices spread throughout every field, each process creates the huge amount of data and combines it to big data.

D. Networking connection-

IOT applications make the connection through the internet connectivity by an IP address to the physical objects. However, there are only a limited number of addresses available according to the IP naming. Due to the growing number of devices, this naming system will not be feasible anymore. Therefore, researchers are looking for another alternative naming system to represent each physical object.

II. IOT ENABLERS

- RFIDs: uses radio waves in order to electronically track the tags attached to each physical object.
- Sensors: devices that are able to detect changes in an environment

- Nanotechnology: as the name suggests, these are extremely small devices with dimensions usually less than hundred nanometres
- Smart networks: mesh topology

III. CHARACTERISTICS OF IOT

- Massively scalable and efficient
- IP-based addressing will no longer be suitable in the upcoming future.
- An abundance of physical objects is present that does not use IP, so IoT is made possible.
- Devices typically consume less power. When not in use, they should be automatically programmed to sleep.
- A device that is connected to another device right now may not be connected in another instant of time.
- Intermittent connectivity – IoT devices aren't always connected. In order to save bandwidth and battery consumption, devices will be powered off periodically when not in use. Otherwise, connections might turn unreliable and thus prove to be inefficient.

IV. GROWTH OF INTERNET OF THINGS OVER PAST YEAR

- The graph below depicts the growth of IoT over the years. In 1992, only 1,00,000.
- Using IOT as a technology. Till 2003, the number grew to half a billion people. While 2009
- Marked the IOT inception, 2012 witnessed a sudden increase in the usage of IOT.
- People using IOT reached 8.7 billion, and there was no looking back. The number of users has been growing exponentially over the years reaching 28.4 billion in 2017. It is expected that the number will broaden to 50.1 billion by 2020.

V. IOT INFORMATION LIFECYCLE

According to Red-hat Information Lifecycle cited, Data that is generated and collected by sensors, actuators, human interfaces, control panels etc. are analyzed initially (field level) to produce information which can be used for further analysis and performing actions.

This data is International Journal of Computer Science & Information Technology (IJCSIT) Vol 10, No 2, April 2018 further processed and examined to decide the desirable steps that need to be taken.

Information produced at this stage is used to trigger pre-defined business rules that correspond to it. The Intelligence of the system takes the normal actions required to respond to the environment.

The information gained from this experience is then summarized and sent to the knowledge base where it is stored and used for deep learning and analysis to draw new conclusions. New rules created here are sent to the

Intelligence module to add to its accuracy, and more optimized tactical tools generated in the knowledge base are forwarded to the Information module to add to its expertise in analysis of data. The knowledge base is controlled, modified and amplified by experts of the domain the system belongs to.

VI. FUTURE OF IOT

The uncertainty and business risk is always present in any new technology. In case of IoT, it is observed that many of the dangers are physically not present somewhat they are distorted or misstated. While it will take time to develop the IoT vision fully, the building blocks to start the process are ready to be used.

The major requirements such as - hardware and software assets are either available in a less quantity or some of them are under development; it is also a fact that: the security and confidentiality concerns of IoT devices are not properly addressed over past decade.

It is a whole and sole responsibility of stakeholders to collaborate and carry out the open standards to make International Journal of Computer Science & Information Technology (IJCSIT) Vol 10, No 2, April 2018.

IoT reliable, secure and interoperable. Therefore, allowing secured services to be delivered seamlessly. Over the next few years IoT is expected to make over $19 trillion. However, the problem associated with this these 'things' have myths surrounding them, some of which are impacting how organizations develop the apps to support them.

VII. IOT AND SENSORS

The data produced by most sensors are not used efficiently. To help the technology evolve, 62% surveyed manufacturers believe that its functionality can be improved by advancing analytics features. More training on analytics tool was also thought to be one way by 45% people. More mobility, computing power and capacity to store data were also some factors mentioned by the manufacturers.

VIII. CONCLUSION

IOT is the future of our world. It rules the world in each and every department. The Scope of IOT is enhanced to the next level. Each and every devices that we use has the IOT chips. IOT chips has the better understanding and that brings the world in a hand. In future this can be implemented in field of railway, industries, supermarkets, hotels etc… IOT controls the world. In this paper we had discussed about a future IOT and its challenges.

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