Internet of Things and its Applications

Ajay Kurhe
dept. of Computer Science
S.G.B. College
Purna, India,
ajay.kurhe@gmail.com

Alka S. Kausadikar
dept. of Mathematics
S.G.B. College,
Purna, India,
akousadikar@gmail.com

Ulhas Patki
dept.of Computer Science
Science College,
Nanded, India
patkiulhas@gmail.com

Suhas S. Satonkar
dept.S.J.College,
Gangakhed, India
suhassatonkar.gmail.com

Abstract— The high entrance rate of new innovations in every one of the exercise of regular day to day existence is encouraging the conviction that for any new societal challenge there is always an ICT solution that can deal with it successfully. The solution most recently proposed is the "Internet of Things " (IoT). This apparent panacea of the ICT world takes on different aspects and is actually identified with different technological solutions (often very different). As a result, many people believe that IoT is only RFIDs, others believe that it is sensor networks, and others believe that it is machine-to-machine. Meanwhile, industrial players take advantage of IoT 's popularity to use it as a very trendy brand for consumer-oriented technology solutions. Sometimes scientific literature doesn't help much to clarify, as it is rich in IoT definitions that are often discordant.

Objective of this paper is to clarify the concept of Internet of Things and it uses in society. Also we are present the applications of Internet of Things, these applications are arranged on ranking and in this ranking 3 main things are considered : people find on Google, people talk on twitter and what people write about on LinkedIn.

Keywords— IoT (Internet of Things), Web of Things, microelectronics, smart home, RFID (Radio Frequency Identification), Intelligent.

I. INTRODUCTION

The Internet of Things is a vision in which the Internet expands into the real world. Everyday objects embrace the world. Physical components are no longer separated from However, the virtual world can be remotely controlled and act as physical access points to services of the Internet. An Internet of Things really makes computing omnipresent. Concept initially presented in the early 1990s[1] by Mark Weiser

The "Internet of Things" terminology was used in 1999 by UK innovation pioneer Kevin Ashton to depict a framework. At that time, questions raised, how to physical world connected to internet by sensors [2]? Ashton makes up the term to exemplify the influence of connecting (RFID) Radio-Frequency Identification tags [3]. This tags used in commercial supply chains to the Internet. So as to tally and track products without the requirement for human mediation. Now days, the Internet of Things has come to be popular term for depicting situations in which Internet network and computing ability extend to a lot of different of things or devices, objects, sensors and regular items.

The vision of the Internet of Things is based on the belief that steady progress is being made. We have seen microelectronics, communication and information technology Over recent years, the foreseeable future will continue. In fact – due to their decrease Size, price decrease constantly and energy consumption decrease–processors, Module communications and other electronic components are increasingly combined into regular things nowadays.

The term "internet of things" has spread rapidly in recent years–it could spread in 2005. You can already find it in book titles [4, 5] and the first scientific conference was held in 2008, held in this area of research [6]. Initially, European politicians only used the term in RFID technology context, but the RFID Conference titles "From RFID to The Internet Things (2006) and " RFID: Towards the Internet of Things" (2007) held by the EU Commission already allude to a broader interpretation. Finally, in 2009, a dedicated EU Commission action plan ultimately saw the Internet of Things as a general evolution of the Internet "from a network of interconnected computers to a network of interconnected objects" [7].

The Internet of Things (IoT), also known as or referred as the Internet of Objects, will change all of us. The Internet affects science, government, enterprise, education, communication and humanity [8]. The Internet is clearly one of the most important and a powerful creation in human history and now, with the Internet of Things concept, the Internet is growing and has smart life in every aspect [9].

II. CONCEPT

The Internet of Things is a new Internet access technology. Objects recognize themselves and obtain intelligence through the Internet of Things by taking or enabling related decisions to communicate information about them [10]. These objects can access information that has been added to other services or can be added to them [10]. Figure 1 review that anything can communicate with the Internet at any time from any place to provide any services to anyone via any network. This concept will create new types of applications such as smart vehicles and smart homes for the provision of numerous services such as automation, communication, entertainment, notifications, security, computers and energy saving [11, 12].From a technical point of view, the Internet of Things is not the result of a single novel technology; instead, several technical developments combined provide the capabilities to bridge the gap between the virtual and physical worlds. These features include: Communication and cooperation, Addressability, Identification, Sensing, Actuation, Embedded information processing, Localization, User interfaces [13].
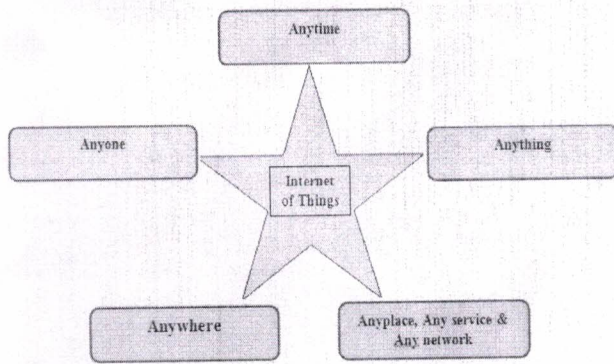
Figure 1. Internet of things Concept

In the past, combining these digital devices has been difficult or impossible. In addition, it is essential to collect information for the day-to-day management of activities and for long - term development planning in the city. For example, some information on public transport, such as real - time location and use, parking space occupancy, traffic jams and other data such as weather, air and noise pollution, water pollution, energy consumption, etc. Continuously should be collected. To this end, various technologies have been used to address each application's specific features.

III. APPLICATIONS:

1)   Smart home

Smart Home stands out clearly as the highest application of the Internet of Things on all measured channels. More than 60,000 people are currently searching every month for the term "intelligent home." It's not surprising. The Smart Home IoT Analytics company database consists of 256 companies and start - ups. More companies are active in smart house applications than any other IoT application. The total funding for start - ups in Smart Home is currently over $ 2.5 billion. This list contains leading startup names such as Nest or AlertMe and a number of multinational companies such as Philips, Haier or Belkin.

2)   Wearables

Wearable's is also a hot topic. As consumers await the release of Apple's new smart watch in April 2015, wearable innovations like the Sony Smart B Trainer, the Myo gesture control or the Looksee bracelet are plenty more exciting. Of all IoT start - ups, Jawbone is probably the wearable manufacturer with the largest funding to date. It's over half a billion dollars.

3)   Smart City

Smart city covers a wide range of applications, ranging from traffic management to water distribution, waste management, urban security and monitoring. Its popularity is driven by the fact that many intelligent city solutions promise to alleviate real pain in the cities today. Smart City IoT solutions solve traffic congestion, reduce noise and pollution and help make cities safer.

4)   Smart grids

It's a special smart grid. A future smart grid promises to automated use information on the behavior of electricity suppliers and consumers to improve electricity efficiency, reliability and economy. 41,000 monthly Google searches highlight the popularity of the concept. The lack of tweets (only 100 per month) shows, however, that people do not have much to say.

5)   Industrial internet

The industrial Internet is also one of the special applications of the Internet of Things. While many market researchers such as Gartner or Cisco consider the industrial Internet to be the IoT concept with the highest overall potential, its popularity does not currently reach masses such as smart homes or wearable's. However, the industrial internet has a lot to do with it. The industrial Internet receives the biggest push on Twitter (~1,700 tweets per month) compared to other IoT concepts that are not consumer-oriented.

6)   Connected car

The connected car slowly arrives. Due to the fact that the development cycles typically take 2 - 4 years in the automotive industry, we have not seen much buzz around the connected car yet. But we seem to get there. Most major car manufacturers and some brave startups work on connected automotive solutions. And if this world's BMWs and Fords do not soon present the next generation of Internet connected cars, other well-known giants will: Google, Microsoft and Apple all have connected car platforms announced.

7)   Connected   Health   (Digital health/Telehealth/Telemedicine)

Connected health is still the sleeping giant of applications in the Internet of Things. The concept of a connected health care system and intelligent medical devices has enormous potential (see our market segment analysis), not only for companies, but also for people's well - being in general. Connected health, however, has not yet reached the masses. Prominent cases of use and major start - up successes remain to be seen.

8)   Smart retail

Proximity-based advertising begins to take off as a subset of intelligent retail. But the ranking of popularity shows that it's still a niche. One LinkedIn post a month is nothing like 430 for an intelligent home.

9)   Smart supply chain

Supply chains have already become more intelligent for some years. Solutions to track goods while on the road or to exchange inventory information with suppliers have been on the market for years. So while it is perfectly logical that the subject gets a new push with the Internet of Things, its popularity seems to be limited.

10)   Smart farming

Intelligent agriculture is a frequently overlooked business case for the Things Internet because it does not really fit into the well-known categories of health, mobility or industry. However, the Internet of Things could revolutionize the way farmers work because of the remoteness of farming operations

and the large number of livestock that could be monitored. This idea has not yet reached wide - ranging attention. However, one of the applications for the Internet of Things should not be underestimated. Intelligent farming will become an important field of application in exporting countries with predominantly agricultural products.

CONCLUSION:

The Internet of things is another innovation that offers a variety of applications to interface things and people with things online. Each object on Earth is distinguished, related to each other autonomously through internet selection. All correspondence systems and advances are used to build the online concept of things such advances are versatile computing, RFID, remote sensor arrangements and plant frameworks, but varying calculations and procedures to induce managers' forms, swinging off information and security problems. IoT needs institutionalized style methodology, conventions, ID plans and frequencies can occur in parallels, each of which is intended for specific and express use. Several shrewd applications seem to be real in our life online.

REFERENCES

[1] Weiser, M.: The Computer for the 21st Century. Scientific American 265(9):66–75 (1991)

[2] Ashton was working on RFID (radio-frequency identification) devices, and the close association of RFID and other sensor networks with the development of the IoT concept is reflected in the name of the RFID device company that Ashton joined later in his career "ThingMagic."

[3] "Radio-Frequency Identification." Wikipedia, the Free Encyclopedia, September 6, 2015. https://en.wikipedia.org/wiki/Radiofrequency_Identification

[4] d. Fleisch, E., Mattern, F.: (eds.) Das Internet der Dinge. Springer (2005)

[5] International Telecommunication Union: The Internet of Things. ITU (2005).

[6] Floerkemeier, C., Langheinrich, M., Fleisch, E., Mattern, F., Sarma, S.E.: (eds.) The Internet of Things. First International Conference, IOT 2008, LNCS 4952, Springer (2008)

[7] European Commission: Internet of Things – An action plan for Europe. COM(2009)   278,   http://eur-lex.europa.eu/LexUriServ/site/en/com/2009/com2009_0278en01.pdf (2009)

[8] M. A. Ezechina, K. K. Okwara, C. A. U. Ugboaja. The Internet of Things (Iot): A Scalable Approach to Connecting Everything. The International Journal of Engineering and Science 4(1) (2015) 09-12.

[9] http://www.meraevents.com/event/iot-workshop

[10] http://www.nxp.com/assets/documents/data/en/white-papers/INTOTHNGSWP.pdf

[11] Saranya C. M., Nitha K. P., Analysis of Security methods in Internet of Things. International Journal on Recent and Innovation Trends in Computing and Communication, Volume 3, Issue 4, April 2015.

[12] Sapandeep Kaur, Ikvinderpal Singh. A Survey Report on Internet of Things Applications. International Journal of Computer Science Trends and Technology Volume 4, Issue 2, Mar - Apr 2016.

[13] Friedemann Mattern and Christian Floerkemeier, "From the Internet of Computers to the Internet of Things", Springer, Berlin, Heidelberg, • DOI https://doi.org/10.1007/978-3-642-17226-7_15, Print ISBN 978-3-642-17225-0, • Online ISBN 978-3-642-17226-7