International Journal of Research in Engineering and Science (IJRES)
ISSN (Online): 2320-9364, ISSN (Print): 2320-9356
www.ijres.org Volume 9 Issue 6 ǁ 2021 ǁ PP. 76-79

Preamble and Introduction of IoT and Applications

Baljeet Kaur
(Research Scholar,Guru Kashi University)
Bathinda

Abstract-*This paper provides an introduction to Internet of Things (IoT).The Internet concept of things has developed because of the integration of various technologies. In the consumption realms, the internet is enabled by analogue structures, wireless sensor networks and controls.*

Date of Submission: 25-05-2021 Date of acceptance: 07-06-2021

1.1 The Internet of Things (IoT)

It defines a network of physical items – 'things'– that are built into sensors, apps and other technology to communicate and share data across the Internet with other devices and systems. The Internet of Things (IoT) is one of the newest technology in today's age that focuses on the interconnection of every real world item. Through embedded computational systems we will visualize the actual world artifacts and interact with each other. With this technology, we can use the Internet infrastructure to track everything from remote locations. Using IoT, the interconnection can be established using existing network resources in every system, device, machine, human being, home equipment , office products. As an example or case of IoT, we can track any train by using Indian Railways' messaging service. We can send out the SPOT message to 139 as per the instructions. After this post, we get the train's exact position and nearest station.

At the base level, IoT uses sensors and embedded chips that are inserted into the system we wish to monitor and track. Classically, RFID (Radio Frequency Identification) based devices are used to implement IoT. The Things, in IoT, refer to a wide variety of devices such as heart monitoring implants, remote monitoring and prescription biochip transponders deployed with patients, animals, electrical clams in coastal waters, automobiles with built-in sensors, or field operating devices that assist firefighters in search and rescue. Current market examples include smart thermostat and washer systems or dryers which use Wi-Fi for remote monitoring.

Figure 1.1: IoT based Environment with Assorted Devices

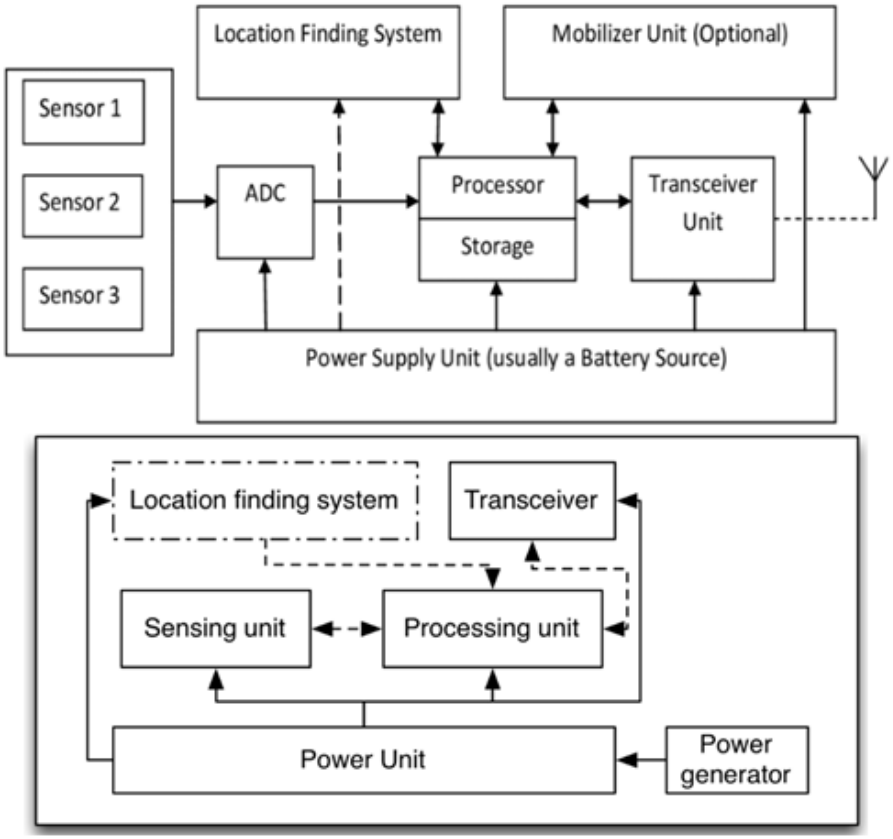

Figure 1.2: Key Segments in Wireless Scenario

	WiMAX	WiFi (a)	Bluetooth	WiFi (b)	WiFi (g)
Range Parameter (meters)	50	50	10	100	100
Frequency (In GHz)	2 – 66	5	2.45	2.4	2.4
Limitations	Cost	Cost Factor	Range Issues	Speed	Cost and Range both
Speed (In Mbps)	80	54	0.72	11	54
International Standard	802.16	802.11a	802.15	802.11b	802.11g
Advantages	Speed, Range	Speed	Low Cost	Low Cost	Speed

Table 1.1: Parameters

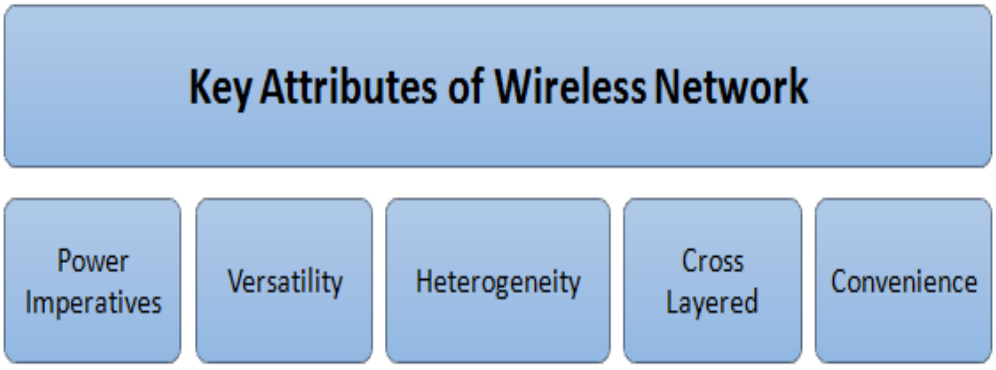

Figure 1.3: Key Attributes in Wireless Network

1.2 Application Domains of IoT

IoT apps may be used to enable remote control of the health and emergency response systems. These devices can range from blood pressure and heart rate monitoring devices to advanced devices capable of monitoring specialized implants, such as pacemakers, Fitbit electronic wristbands, or advanced hearing aids.

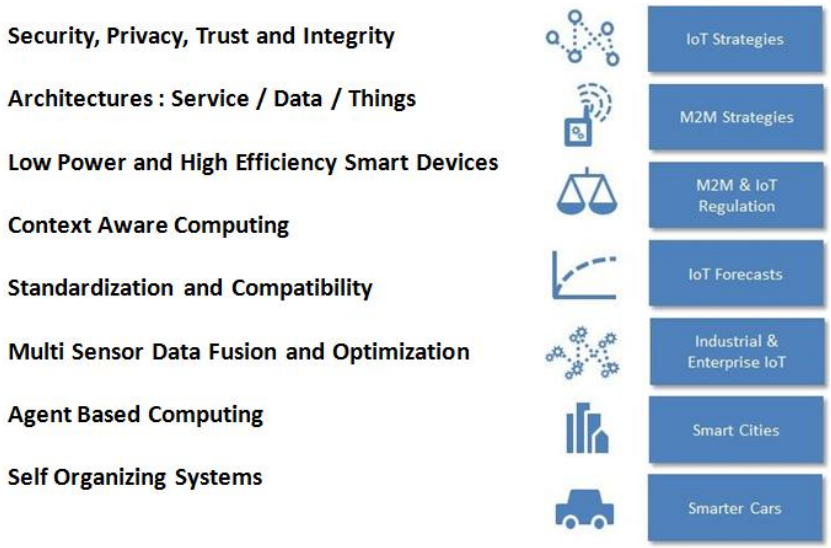

Figure 1.4 :Application Domains

The applications domains and IoT deployment viewpoints are as follows:-

1.2.1 Smart Town
• Dynamic and Smart Parking
• Dynamic and Smart Roads
• Creative and Smart Toll Plaza
• Clever Traffic Lighting
• Road jams

1.2.2 Security of the environment and natural energy
• Fire detection in woodland
• Air Pollution
• Feeling Earthquake
• Shore dependent prediction of disasters
• Snow Level Monitoring
• Avoidance of Avalanches and Landslides

1.2.3 Smart Home
• Functional Wearables
• Dynamic and Smart Home Appliances
• Monitoring devices for aged people

1.2.4 Intelligent Water
• The monitoring of potable water
• The identification of chemical leakages
• Remote Tracking of Wetlands
• Evaluating emissions rate
• Water leaks
• River flows

1.2.5 Outlet
• Chain of Supply Check
• Clever product administration
• Intelligent retail apps
• Regulation of the sector

1.2.6 System of Business
• Intelligent grids
• Talking computer
• Computer for self-diagnostics
• Indoor Air Quality

• Industrial catastrophe forecast
• Control of temperature
• Ozone presence;
• Positioning outside.

1.2.7 Agriculture Intelligent

• Agriculture Accuracy
• Veterinary robots (Agribots)
• Surface quality verification
• Mansion green Green

1.2.8 Mobile Wellbeing and Telemedicine

• Surveillance of patients
• Chills for fitness
• Stray in radiation
.Telescope
• Wellness Connect online

Conclusion-At last we can say without IoT people will not survive. We deeply studt about IoT and its all Application domain. RPL is also discussed and key attributes of wireless network.

REFERENCES

[1]. Aburukba, Raafat; Al-Ali, A. R.; Kandil, Nourhan; AbuDamis, Diala (10 May 2016). Configurable ZigBee-based control system for people with multiple disabilities in smart homes. pp. 1–5. doi:10.1109/ICCSII.2016.7462435. ISBN 978-1-4673-8743-9. S2CID 16754386.

[2]. Acharjya, D.P.; Ahmed, N.S.S. (2017). "Recognizing Attacks in Wireless Sensor Network in View of Internet of Things". In Acharjya, D.P.; Geetha, M.K. (eds.). Internet of Things: Novel Advances and Envisioned Applications. Springer. pp. 149–50. ISBN 9783319534725.

[3]. Ackerman, Spencer (15 March 2012). "CIA Chief: We'll Spy on You Through Your Dishwasher". WIRED. 26 June 2015.

[4]. Alfandi, Omar; Hasan, Musaab; Balbahaith, Zayed (2019), "Assessment and Hardening of IoT Development Boards", Lecture Notes in Computer Science, Springer International Publishing, pp. 27–39, doi:10.1007/978-3-030-30523-9_3, ISBN 978-3-030-30522-2

[5]. Alippi, C. (2014). Intelligence for Embedded Systems. Springer Verlag. ISBN 978-3-319-05278-6.

[6]. Alleven, Monica. "Sigfox launches IoT network in 10 UK cities". Fierce Wireless Tech. 13 May 2015.

[7]. Alsulami, M. M.; Akkari, N. (April 2018). "The role of 5G wireless networks in the internet-of- things (IoT)". 2018 1st International Conference on Computer Applications Information Security (ICCAIS): 1–8. doi:10.1109/CAIS.2018.8471687. ISBN 978-1-5386-4427-0.

[8]. Amiot, Emmanuel. "The Internet of Things. Disrupting Traditional Business Models" (PDF). Oliver Wyman. 14 October 2018.

[9]. Anthony, Scott (15 July 2016). "Disruptive Innovation: Kodak's Downfall Wasn't About Technology". Harvard Business Review. Harvard Business Publishing. 30 March 2017.

[10]. Antonakakis, Manos; April, Tim; Bailey, Michael; Bernhard, Matt; Bursztein, Elie; Cochran, Jaime; Durumeric, Zakir; Halderman, J. Alex; Invernizzi, Luca (18 August 2017). Understanding the Mirai Botnet (PDF). Usenix. ISBN 978-1-931971-40-9. 13 May 2018.

[11]. Ardiri, Aaron (8 July 2014). "Will fragmentation of standards only hinder the true potential of the IoT industry?". evothings.com.

[12]. Ashton, K. (22 June 2009). "That 'Internet of Things' Thing". 9 May 2017.

[13]. Baker, Jason (14 December 2017). "6 open source home automation tools". opensource.com. 13 May 2019.

[14]. Bandyopadhyay D, Sen J. "Internet of things: Applications and challenges in technology and standardization", Wireless Personal Communications. pp.49-69, 2011

[15]. Bastos, D.; Shackleton, M.; El-Moussa, F. (2018). "Internet of Things: A Survey of Technologies and Security Risks in Smart Home and City Environments". Living in the Internet of Things: Cybersecurity of the IoT - 2018. pp. 30 (7 pp.). doi:10.1049/cp.2018.0030. ISBN 9781785618437.

[16]. Bauer, Harald; Patel, Mark; Veira, Jan (October 2015). "Internet of Things: Opportunities and challenges for semiconductor companies". McKinsey & Co.

[17]. Brown, Eric (20 September 2016). "21 Open Source Projects for IoT". Linux.com. 23 October 2016.

[18]. Brown, Ian (12 February 2013). "Britain's Smart Meter Programme: A Case Study in Privacy by Design". International Review of Law, Computers & Technology. 28 (2): 172–184. doi:10.1080/13600869.2013.801580. S2CID 62756630. SSRN 2215646.

[19]. Brown, Ian (2015). "Regulation and the Internet of Things" (PDF). Oxford Internet Institute. 23 October 2016.

[20]. C. Schmitt, M. Noack, W. Hu, T. Kothmayr, and B. Stiller, "Two-way Authentication for the Internet-of-Things," Securing Internet Things through Progress. IGI Global Journals, pp. 27-56, 2017.