Peer Reviewed Refered
and UGC Listed Journal
Journal No.: 47100

AN INTERNATIONAL MULTIDISCIPLINARY
HALF YEARLY RESEARCH JOURNAL

GENIUS

Volume - VI, Issue - II, FEBRUARY - JULY - 2018
ISSN - 2279 - 0489

Impact Factor - 4.954 (www.sjifactor.com)

PART - III

AJANTA PRAKASHAN

ISSN 2279 - 0489

AN INTERNATIONAL MULTIDISCIPLINARY
HALF YEARLY RESEARCH JOURNAL

GENIUS

Volume - VI | Issue - II | PART - III | February - July - 2018

Peer Reviewed Referred and UGC Listed Journal

Journal No. 47100

ज्ञान-विज्ञान विमुक्तये

IMPACT FACTOR / INDEXING
2017 - 4.954
www.sjifactor.com

❖ EDITOR ❖

Assit. Prof. Vinay Shankarrao Hatole
M.Sc (Math's), M.B.A. (Mkt), M.B.A (H.R),
M.Drama (Acting), M.Drama (Prod & Dirt), M.Ed.

❖ PUBLISHED BY ❖

Ajanta Prakashan
Aurangabad. (M.S.)

CONTENTS OF PART - III

CONTENTS OF PART - III

Volume - VI - Issue - II - February - July - 2018
GENIUS - ISSN - 2279 - 0489 - IMPACT FACTOR - 4.954 (www.sjifactor.com)

CONTENTS OF COMMERCE

CONTENTS OF TECHNOLOGY

11 IoT Technology in Building Smart Cities

Ms. Janhavi Rajendra Raut
Dept. of Comp Science, Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Tal & Dist-Palghar, Maharashtra

Abstract:

The **Internet of things (IoT)** is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and network connectivity which enables these objects to connect and exchange data.

The simple standard protocols are not sufficient for openness and interoperability for human life. IoT for smart cities needs to guarantee the accessibility of open data and cloud services to stimulate innovation and maximize the benefits of the society.

"Internet of Things" connects "living and non-living things" through "internet". Traditionally in the object oriented paradigm everything in the world is considered as an object, but in the IoT paradigm everything in the world is considered as a smart object, and allows them to communicate to each other through the internet technologies by physically or virtually.

The potential benefits as well as the challenges associated with IoT for cities are discussed. The aim of this paper is presents the internet of things Applications, Related Future Technologies, and challenges.

Introduction:

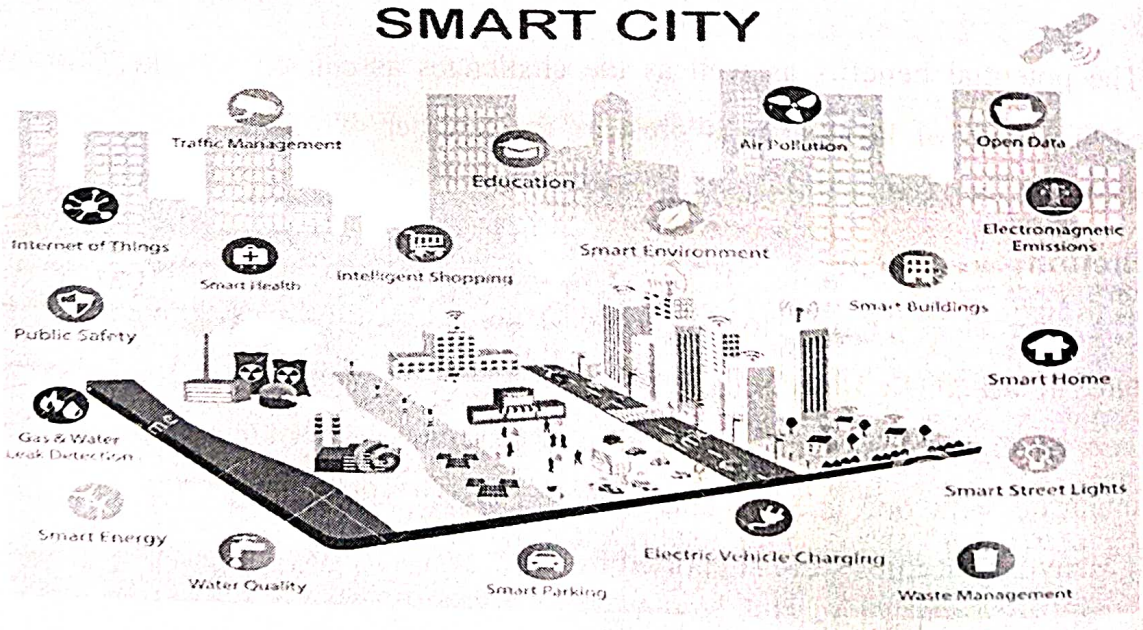
The Internet of Things (IoT) is a recent communication paradigm that envisions a near future, in which the objects of everyday life will be equipped with microcontrollers, transceivers for digital communication, and suitable protocol stacks that will make them able to communicate with one another and with the users, becoming an integral part of the Internet. Many major cities were supported by smart projects, like Seoul, New York, Tokyo, Shanghai, Singapore, Amsterdam, and Dubai.

Smart cities may still be viewed as cities of the future and smart life, and by the innovation rate of creating smart cities today's, it will became very feasible to enter the IoT technology in cities development.The city may be considered as a service organization with

citizens as the customers - it provides services to its citizens. There is a demand for smarter, effective, efficient and more sustainable cities. IoTsolutions provide an effective way for monitoring the environment, such as pollution andtraffic, which can support pollution mitigation, real-time traffic control, and city planning.The IoT concept, hence, aims at making the Internet even more immersive and pervasive. The IoT also enables the sharing of open data and encourages citizen engagement,which is highly valuable for increasing productivity, decreasing costs.

Smart cities demand requires careful planning in every stage, with support of agreement from governments, citizens to implement the internet of things technology in every aspects. By the IoT, cities can be improved in many levels, by improving infrastructure, enhancing public transportation reducing traffic congestion, and keeping citizens safe, healthy and more engaged in the community.

By connection all systems in the cities like transportation system, healthcare system, weather monitoring systems and etc., in addition to support people by the internet in every place to accessing the database of airports, railways, transportation tracking operating under specified protocols, cities will become smarter by means of the internet of things.



Smart city concept and services:

It means different things to different people. The conceptualization of Smart City, therefore, varies from city to city and country to country, depending on the level of

development, willingness to change and reform, resources and aspirations of the city residents. A smart city would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a smart city.

Some definitional boundaries are required to guide cities in the Mission. In the imagination of any city dweller in India, the picture of a smart city contains a wish list of infrastructure and services that describes his or her level of aspiration.

1. Waste Management: Waste management is a primary issue in many modern cities, due to both the cost of the service and the problem of the storage of garbage in landfills. To realize such a smart waste management service, the IoT shall connect the end devices, i.e., intelligent waste containers, to a control center where an optimization software processes the data and determines the optimal management of the collector truck fleet.

2. Smart Energy, Smart Lighting: In order to support the 20-20-20 directive, the optimization of the street lighting efficiency is an important feature. In particular, this service can optimize the street lamp intensity according to the time of the day, the weather condition, and the presence of people. In order to properly work, such a service needs to include the street lights into the Smart City infrastructure. It is also possible to exploit the increased number of connected spots to provide WiFi connection to citizens. In addition, a fault detection system will be easily realized on top of the street light controllers.

3. Traffic Congestion: On the same line of air quality and noise monitoring, a possible Smart City service that can be enabled by urban IoT consists in monitoring the traffic congestion in the city. Even though camera-based traffic monitoring systems are already available and deployed in many cities, low-power widespread communication can provide a denser source of information. Traffic monitoring may be realized by using the sensing capabilities and GPS installed on modern vehicles, and also adopting a combination of air quality and acoustic sensors along a given road.

4. Smart Parking: The smart parking service is based on road sensors and intelligent displays that direct motorists along the best path for parking in the city. The benefits deriving from this service are manifold: faster time to locate a parking slot means fewer CO emission from the car, lesser traffic congestion, and happier citizens. The smart parking service can be directly integrated in the urban IoT infrastructure, because many companies in Europe are providing market products for this application.

Internet of things challenges:

1. Power supply: Things typically move around and are not connected to a power supply, so their smartness needs to be powered from a self-sufficient energy source. Although passive RFID transponders do not need their own energy source, their functionality and communications range are very limited. Hopes are pinned on future low power processors and communications units for embedded systems that can function with significantly less energy. Energy saving is a factor not only in hardware and system architecture, but also in software, for example the implementation of protocol stacks, where every single transmission byte will have to justify its existence.

2. Software complexity: A more extensive software infrastructure will be needed on the network and on background servers in order to manage the smart objects and provide services to support them that because the software systems in smart objects will have to function with minimal resources, as in conventional embedded systems.

3. Self-Organizing: Smart things should not be managed as computers that require their users to configure and adapt them to particular situations. Mobile things, which are often only sporadically used, need to establish connections spontaneously, and able to be organize and configure themselves to suit their particular environment.

4. Automatic Discovery: In dynamic environments, suitable services for things must be automatically identified, which requires appropriate semantic means of describing their functionality.

5. Scalability: Internet of Things has a big concept than the conventional Internet of computers, because of things are cooperated within an open environment. Basic functionality such as communication and service discovery therefore need to function equally efficiently in both small scale and large scale environments. The IoT requires a new functions and methods in order to gain an efficient operation for scalability.

6. Wireless communications: From an energy point of view, established wireless technologies such as GSM, UMTS, Wi-Fi and Bluetooth are far less suitable.

7. Fault tolerance: Objects in internet of things is much more dynamic and mobile than the internet computers, and they are in changing rapidly in unexpected ways. Structuring an Internet of Things in a robust and trustworthy manner would require redundancy on several levels and an ability to automatically adapt to changed conditions.

8. Data interpretation: To support the users of smart things. there is a need to interpret the local context determined by sensors as accurately as possible. For service providers to profit from the disparate data that will be generated, needs to be able to draw some generalizable conclusions from the interpreted sensor data.

9. Security and privacy: In addition to the security and protection aspects of the Internet such in communications confidentiality, the authenticity and trustworthiness of communication partners, and message integrity, other requirements would also be important in an Internet of Things.

Conclusion:

This paper is a contribution to the understanding of smart city solutions and applications. In the introductory section there is a summary of the definitions and understanding of smart cities. It can be observed that the concept of a smart city is still somewhat unclear, definitions of a "smart city" vary broadly. Cities are becoming "smarter," and "intelligent" as governments, communities, and businesses rely on technology to achieve goals In the introductory section there is a summary of the definitions and understanding of smart cities. It can be observed that the concept of a smart city is still somewhat unclear, definitions of a "smart city" vary broadly. Cities are becoming "smarter," and "intelligent" as governments, communities, and businesses rely on technology to achieve goals.

References:

1. Harrison C, Donnelly IA (2011) A Theory of Smart Cities. Proceedings of the 55th Annual Meeting of the ISSS. Hull: International Society for the Systems Sciences.
2. Ashton K: That 'Internet of Things' thing: in the real world, things matter more than ideas. RFID J 2009. Online. http://www.rfidjournal.com/articles/view?4986.
3. Wachowicz M: Harnessing the smart city space of tomorrow (New Frontiers for Geomatics). GIM Int 2013, 27(10). online.
4. http://www.gim-international.com/issues/articles/id2029-New_Frontiers_ for_Geomatics.html
5. Smart grids and smart energy solutions, Malmo Stad, http://malmo.se/English/Sustainable-City-Development/Climate-smart-Hyllie.html, 2015.