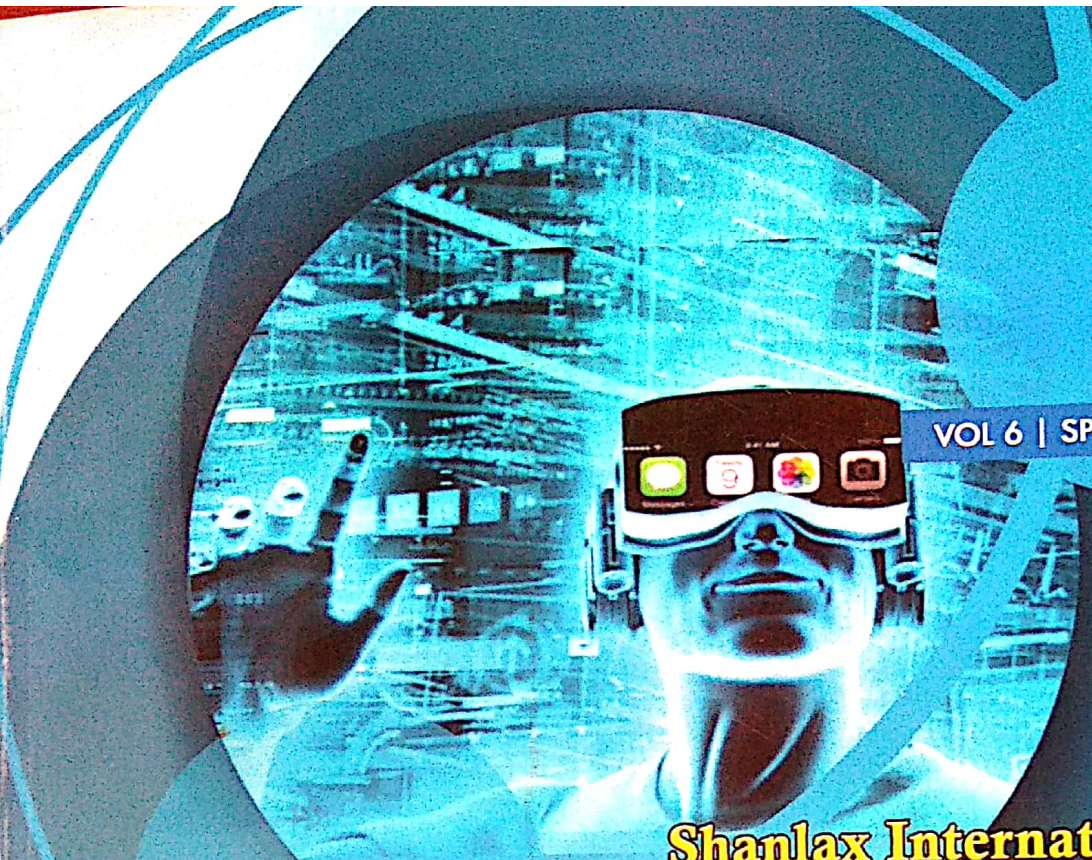

ISSN 2321-788X

VOL 6 | SPECIAL ISSUE 1 | JULY 2018

JOURNAL WITH 3.025 IMPACT FACTOR SJI ARTS, SCIENCE & HUMANITIES

Shanlax International Journal of Arts, Science and Humanities

A Peer-Reviewed, Refereed Scholarly Quarterly Journal
Globally Indexed with Impact Factor

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Vol. 6 Special Issue 1 July, 2018 ISSN: 2321-788X Impact Factor: 3.025

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CONTENTS

PROTOCOLS, FUTURE SCOPE, AND CHALLENGES OF INTERNET OF THINGS

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Abstract

"The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals, or people provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction."- Internet of Things represents a system which consists of things in the real world, and sensors attached to or combined to these things, connected to the Internet via wired and wireless network structure. The Internet of Things sensors can use various types of connections such as RFID, Wi-Fi, Bluetooth, and ZigBee, in addition to allowing wide-area connectivity using many technologies such as GSM, GPRS, 3G, and LTE. Internet of Things-enabled things will share information about the condition of things and the surrounding environment with people, software systems, and other machines. By the technology of the Internet of Things, the world will become smart in every aspect, since the Internet of Things will provide means of smart cities, smart healthcare, smart homes, and buildings, in addition to many important applications such as smart energy, grid, transportation, waste management and monitoring.

In this paper, we will review about Internet of Things standardizations, protocols and future possibilities of Internet of Things, in addition to the challenges that are faced on the implementation of the Internet of Things.

Keywords: Internet of Things Applications, Future Technologies, Smart Cities, Smart Environment, Smart Energy and Grid, Smart Manufacturing, Smart Healthcare, future possibilities, challenges on implementation.

Introduction

The Internet of Things includes a wide variety of "smart" devices, from industrial machines that transmit data about the production process to sensors that track information about the human body. Often, these devices use internet protocol (IP), the same protocol that identifies computers over the World Wide Web, and allows them to communicate with one another. The goal behind the internet of things is to have devices that self report themselves in real time, improving efficiency, and bringing important information to the surface more quickly than a system depending on human intervention.

Internet of Things Standardizations and Protocols

By 2020, around 50 to 100 billion things will be connected electronically by internet. The Internet of Things (IoT) will provide a technology for creating smart-acting machines to communicate with one another and with many different types of information. The success of IoT depends on standardization, which provides interoperability, compatibility, reliability, and effective operations on a global scale. Today more than 60 companies, in communications and energy, are working with standards, such as IETF, IEEE, and, ITU to specify new IP-based technologies for the Internet of Things.

The design of the IoT standards is required to consider the efficient use of energy and network capacity, as well as respecting other constraints such as frequency bands and power levels for radio frequency communications. As IoT evolves, it may be necessary to review such constraints and to investigate ways to ensure sufficient capacity for expansion, for example, in case of additional radio spectrum allocation as it becomes available.