

The Future of the Internet of Things

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Abstract—The significance of the Internet of Things (IoT) in current trends is continuously rising. IoT is a concept that encompasses various objects and methods of communication to exchange information. Today IoT is more a descriptive term of a vision that everything should be connected to the internet. IoT will be fundamental in the future because the concept opens up opportunities for new services and new innovations. The applications of the IoT are varied and numerous; they range from relatively simple home automation scenarios to the much more complex scenarios of interconnected smart cities. IoT is expected to dominate the future with huge amounts of content oriented traffic that is a result of intensive interactions between the millions of devices that will be available by then. The rising popularity of IoT has been accompanied by a corresponding rise in the number of challenges. In this paper we focus on the current state of IoT, possible usage scenarios and challenges that influence the adoption of the Internet of Things.

Keywords—Internet of Things, smart things.

I. INTRODUCTION

The Internet is a powerful global communication medium that provides instantaneous information across geographical, cultural, language, and time spheres [1]. Internet is a network of networks that consists of millions of private, public, academic, research, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and wired networking technologies [2]. The internet brought marvelous changes into our daily life without leaving any field like day to day personal work, health, education, research, humanity, education, tourism, science, entertainment, government sectors, business, communication, service, manufacturing and so on. More than 180 countries are linked into exchanges of data, information, news and opinions. According to Internet World statistics, there was an estimated of 326, 72, 33, 742 Internet users at global level. This represents almost 42.7% of the total world's population.

The next wave in the area of Internet will be Internet of Things. In the Internet of Things (IoT) paradigm, many of the things that surround us will be on the network in one form or another.

Thing can be defined as an entity, an idea, a quality perceived, or thought to have its own existence in the world. When we are talking about things, they could be both Living Things and Non-Living Things. Things, in this context, can be people, animals, plants, birds, servers, applications, shampoo bottles, cars, steering wheels, coffee machines, electronic devices, park benches or just about any other random item that comes to our mind, even which could be vicinity dust also. Everyday objects include not only electronic devices we encounter but also use daily, and technologically advanced products such as equipment and electronic gadgets, but "things" that we do not do normally think of as electronic at all - such as food, clothing, and furniture, materials, parts, merchandise and specialized items, landmarks, monuments and works of art and all the miscellany of commerce, culture and sophistication [3]. Once something has a unique identifier, it can be tagged, assigned a Uniform Resource Identifier (URI) and monitored over a network, automated other things and even talk too.

II. INTERNET OF THINGS

The Internet of Things is an important topic in technology industry, policy, and engineering circles and has become headline news in both the specialty press and the popular media. This technology is embodied in a wide spectrum of networked products, systems, and sensors, which take advantage of advancements in computing power, electronics miniaturization, and network interconnections to offer new capabilities not previously possible [2]. An abundance of conferences, reports, and news articles discuss and debate the prospective impact of the "IoT revolution"—from new market opportunities and business models to concerns about security, privacy, and technical interoperability [4].

The large-scale implementation of IoT devices promises to transform many aspects of the way we live. For consumers, new IoT products like Internet-enabled appliances, home automation components, and energy management devices are moving us toward a vision of the "smart home", offering more security and energy- efficiency [5]. Other personal IoT devices like wearable fitness and health monitoring devices and network- enabled medical devices are transforming the way healthcare services are delivered. This technology promises to be beneficial for people with disabilities and the elderly, enabling improved levels of independence and quality of life at a reasonable cost [2]. IoT systems like networked

