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IOT BECOME SMART TECHNOLOGY ITS NEED OF TODAY'S ERA

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ABSTRACT In this paper I have elaborate and studied that, Internet of Things (IoT) is an increasingly popular technology that enables physical appliances, smart vehicles, smart home and appliances etc. to communicate and even inter-operate with one another. It has been widely used in industrial production and social applications including smart home, healthcare, and industrial automation. While bringing unprecedented convenience, accessibility, and efficiency, IoT has caused acute security and privacy threats in recent years. There are increasing research works to ease these threats, but many problems remain open. To better understand the essential reasons of new IoT threats and the challenges in current research, this survey first proposes the concept of "IoT features". Then, we discuss the security and privacy effects of eight IoT features including the threats they cause, existing solutions to threats and research challenges yet to be solved.

KEYWORDS : IoT, Wi-Fi, Satellite, Bandwidth

INTRODUCTION

Internet of things (IoT) beased on momentous developments in wireless sensor networks, telecommunications and informatics have paved the realization of pervasive intelligence earlier but now the days it has become a very popular technology which envisions the smart and incredible features of internet of things (IoT). The genesis of IoT goes back to the 1990s with the idea of ubiquitous computing technology in current era. At present the IoT is envisaged both at the individual and professional level. For an individual, IoT plays a pivotal role in enhancing current living standards in the form of e-health, smart home and smart learning technologies. Now the days a professional IoT technology become an application based in automation of work environment such as- smart supply chain and transportation, remote monitoring and logistics.

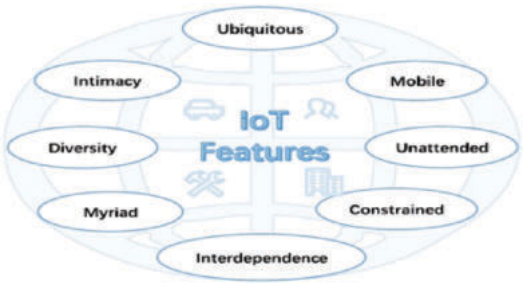

Fig:-1 IoT Features

In 21st century new business models set for IoT implementation requires massive connectivity, high privacy and security, complete coverage, ultra-high reliability and ultra-low latency. The trending 5G enabled IoT encompasses increased data-rates, better coverage and high throughput hence providing solutions to business models and enabling IoT to robots, actuators and drones. So, in this paper, I have present a comparative analysis and detailed review study of the IoT technology covering its architectural trends, uses, challenges and future prospects of smart users.

Iot - Recent Trends

Recently IoT introduced the concept of ubiquitous computing, which later evolved the vision of the smart environment. In the current decade, the `smart environment' concept has become a booming technology. The concept is diverse as it covers transportation/logistics, healthcare, utilities, offices, personal home and much more. Since last 20 years, the technological concepts like augmented maps, autonomous car, mobile ticketing, and passenger counting in transportation/logistics domain have been successfully implemented. The continuous improvement in these technologies is also currently in practice. The concept of IoT enabled Robot taxi, which is underway as a futuristic application. Similarly, remote patient monitoring, smart biosensors, smart ambulances, wearable devices, telemedicine's in IoT-enabled healthcare domain benefitted the society manifold. Public utility infrastructure has been improved to a large extent, with the concept of smart metering and smart-grid systems

Table-1: IoT based Smart Environment System

IoT Things	Communication Networks	IEEE Standard	Modules
Smart Cities	WiFi, 3rd and 4th Generation networks, Satellite	802.11	Architectures based Integrated Information Centre
Smart Building	WiFi	802.11	Cloud based SDN
Smart Transport	WiFi, Setelite	802.11	Smart e-ticketing etc.
Smart Health	WiFi, 3rd and 4th Generation Networks, Satellite	802.15	Remote/AI based health Care
Smart Organization	WiFi, Satellite	802.11	Energy Efficient Remote Monitoring System

Iot As World Smart Wireless Technology

Currently IoT based work and devices become major need of world but the scenario for using these technology in India are very low because of ICT infrastructure and knowledge. IoT is a heterogeneous network that will be connecting around 8 billion devices by 2030 using different wireless technologies and standards such as different generation technologies. The 5G technology is highlighted as it addresses the major challenges of a cellular network more effectively as compared to its predecessors. These challenges are appended below:

- Large bandwidth
- Higher data-rate
- Massive connectivity
- Low end to end latency
- Cost-effective
- Consistent Quality of Service
- Device computational capabilities
- Device intelligence services

Iot Security Features And Privacy

In this paper I have discussed various followings features and issues which cover thair security and privacy-

Description:

We describe what this feature is and explain what makes the feature different compared to the traditional computer or mobile phone.

Threat:

We discuss what potential threats and vulnerabilities are brought by this feature, and what serious consequences are caused by these threats. We also provide diagrams and attack examples for some threats, which make it easier for the reader to follow.

Challenges:

We present what research challenges are to solve these threats.

Solutions & Opportunities:

I present existing solutions tackling the challenges and threats, and

discuss their drawbacks. In addition, we also demonstrate some new security techniques/ideas as opportunities that could help to wrestle with the challenges and threats.

Iot Spectrum Scenario

IoT spectrum issue is very important because the bandwidth of current infrastructure is not satisfactory for everywhere so that IoT based technology may adopted in metro cities only. The certain technologies must be involved in the implementation of 5G deployment till 2030. It is likely that a smaller cellular architecture is very much needed in a form micro and pico to improve the coverage and decrease the path-loss at high mm Waves. This is the way towards the new concept small, low-power cellular base station. These cells are low power, compact and portable base stations which are placed meters apart. Thousands of these small cells form adhoc network acting as a relay and boosting a signal between the end-users and base stations.

Intelligent Networking In Iot Architecture

Strong signals and network strength are very important for properly working of smart devices or appliance but the architecture must quantitative as well as qualitative. One of the applications of artificial intelligence is the implementation of 5G networks till 2030, which is shown in the Cognate project in which architecture of an autonomic self-managing network extending NFV management with the machine learning based decision-making mechanism is discussed. The reason behind deploying a more adaptive controlling mechanism next to base NFV functionalities is the pursuit to reduce the costs of the system, whilst keeping QoS on a competitively high level. Smart vehicle technology based to continuous connectivity for becoming a reality with the integration of latest generation networks with IoT. This integration has given the ability to access the internet in a more efficient way. Now, car manufacturers have developed their interest and are exploring different markets to bring this technology in the market and smart transportation systems.

CONCLUSION AND FUTURE SCOPE

IoT become future prospective technology among many challenges are facing now the days and access technology as per exploring experience, coverage enhancement (CE) is one of the primary and challenging physical layer objectives to improve the maximum coupling required to support tactile internet and multimedia applications. Security, energy efficiency and massive connectivity are other major concerns. Hence, research efforts are being actively pursued by researchers in each domain. The extensive research efforts are due to the high demands, and requirements of 5G enabled IoT networks driven by previously never throughput of use cases as per smart user's experience.

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