Research Proposal on

Reliable security authentication system in IOT based on 5g wireless network

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ABSTRACT

The rapid growth of Internet of Things(IoT) along with wide range of applications made IoT popular. Moreover,the network connectivity and communication support is provided by 5G technology. The mobile technology is also becoming the essential component of Social life, which is also becoming the essential interface for IoT. This paper presents a comprehensive study on the security of 5G wireless network systems compared with the traditional cellular networks in internet of things. The paper starts with a review on 5G wireless networks particularities as well as on the new requirements and motivations of 5G wireless security. we propose a new 5G wireless security architecture, based on which the analysis of identity management and flexible authentication is provided. Different 5G use cases are specified such as industrial automation, health services, smart cities, smart homes and so on. It is believed that 5G wireless systems can enhance mobile broadband with critical services and massive IoT . The new architecture, new technologies, and new use cases in 5G wireless systems will bring new challenges to security and privacy protection. In this paper, we analyze the security aspects of 5G security and provide reliable authenticated system for IOT.

5G mobile networks are expected to be the next big leap in mobile broadband. Peak download speeds as high as 20 gigabits-per-second will enable specialized tasks like remote precision medicine, connected vehicles, virtual and augmented reality, and a wide array of IoT applications.

More than 500 billion IoT devices, from sensors, to actuators, todevices, will be connected to the internet by 2030, according to research from Cisco. The data collected, aggregated, and analyzed by IoT devices will deliver insights across a wide variety of platforms and services, from health care to artificial intelligence innovations. 5G networks will be needed to meet the requirements of these data-intensive IoT devices and related cloud services.

In recent years, various works on 5G-IoT have done [29].The CISCO, Intel, Verizon, etc. have done wireless research projects on 5G, which adapted video quality to the requirements of the human eye. The 5G-IoT provide real-time, reconfigurable, all-online, on-demand, and social experiences to IoT applications.

In this section, we present an architecture that is suitable for the requirements of upcoming IoT applications and services. The new architecture is developed based on the technologies, which are explained in the last section, to provide a more sustainable and scalable than existing architectures. We propose an architecture based on the 5G, which is called the 5G-IoT, with the following features: modularity, efficiency, agility, scalability, simplicity, and ability to response to high demands. The 5G-IoT architectures will provide:

➢ Logically independent networks for applications' requirements;

➢ To reconstruct radio access network (RAN) engage cloud-based radio access network (Cloud RAN) for providing massive connections to multiple standards and implement on-demand deployment of RAN functions required by 5G.

➢ ·Simplifying the architecture of the core network to design on-demand network functions configuration

OBJECTIVES

- The current IOT architecture will not be reliable and responsive for next generation IOT application and upcoming services.

- The main aim is to provide reliable security system for 5g accessed Iot devices.

- The current architectures, will not provide smooth connectivity to a large number of things due to high service requests and data

exchange rates.

- This article is motivated by the future requirements of network architectures to entertain billions of IoT devices

- This proposed architecture makes analysis, modularity, and scalability of an IoT system more efficient. This model simplifies, clarifies, identifies, standardizes, and organizes the essential component of future IoT systems

SCOPE

The scope of my research shall be limited to applications of Embedded Systems in smart city development. During the course of my research I would like to focus on existing applications & research in IoT and work a way out of using these concepts to make existing cities in India smarter .The research shall also need a field study, to understand current problems persisting in urban planning, power management, water resource management, agriculture, etc. and how can we apply the developments of IoT to make resources management more efficient. The proposed research will not restrict itself to theoretical concepts and data analysis; rather, it aims at coming up with solution/solutions to incorporate IoT in everyday setting. The applications and use of IoT shall encounter challenges such as large data handling, security, privacy, seamless integration of systems and their interworking, communication networks related issues like interference, range and reliability limitations etc., data processing and compression, storage etc.

LITERATURE REVIEW

5G as an Enabler for Secure IoT in the Smart Grid

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- the security of IoT devices themselves is a challenge due to the trade-off between device cost and secure communication requirements

- the use of public 5G networks may introduce new types of security risks to the IoT-based smart grids infrastructure

- Further, we outline security risks to IoT-based smart grids originating from compromised 5G network-related infrastructure.

LITERATURE REVIEW

A Novel IoT Architecture based on 5G-IoT and Next Generation Technologies

➢ The combination of technologies is able to satisfy the requirement of new application. The Proposed novel architecture is modular,efficient,agile,scalable,simple and it is able to satify the high amount of data and application demand.

➢ The architecture developed in this paper provides low latency, because the exploitation of 5G and D2D communications, and robustness of connections, because of MTC and Het-Net.

SUMMARY OF LITERATURE

This literature survey of authentication in the IoT context. The analysis of a large spectrum of authentication protocols/schemes leads to identify a number of requirements and open issues that should be taken into consideration by researchers and developers while developing new authentication schemes for IoT networks and applications.

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ADDITIONAL INFORMATION

The most important IoT architectures were introduced. In this section, we compare those architectures with the proposed architecture. As we mentioned, the next generation IoT applications and their services, such as smart factory and smart city, require special attributes, as follows:

Support of Variety of data types, Support a high number of customers and demands, Agility, Flexibility, Robustness of connection, Low Latency Reliable Communication. The current IoT architectures with their communication and networking technologies suffer from providing the above requirements [16]. However, the architectures based on 5G communication technology are able to satisfy the above requirements and provide the following features: simplicity of management, reliability, reconfigurability, high security, easy and fast troubleshooting, wide coverage, low deployment cost.