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Impact of Internet of Things on Healthcare

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Abstract:

During the recent years, one of the most familiar names scaling new heights and creating a benchmark in the world is the Internet of Things (IoT). It is indeed the future of communication that has transformed things (objects) of the real-world into smart objects. The internet of Things (IoT) rises as a powerful domain where embedded devices and sensors can connect and exchange information over the Internet. The Internet of Things (IoT) thus is an emerging paradigm that enables the communication between electronic devices and sensors through the internet in order to facilitate and make the lives of people easy and effective. IoT uses smart devices and internet to provide innovative solutions to various challenges and issues related to various business, governmental and public/private industries across the world, hence is progressively becoming an important aspect of our life that can be sensed everywhere around human beings in the broader perspective, IoT is an innovation that puts together extensive variety of smart systems, frameworks and intelligent devices and sensors. The internet is not only a network of computers, but it has evolved into a network of device of all type and sizes , vehicles, smart phones, home appliances, toys, cameras, medical instruments and industrial systems, animals, people, buildings, all connected ,all communicating & sharing information based on stipulated protocols in order to achieve smart reorganizations, positioning, tracing, safe & control & even personal real time online monitoring , online upgrade, process control & administration.

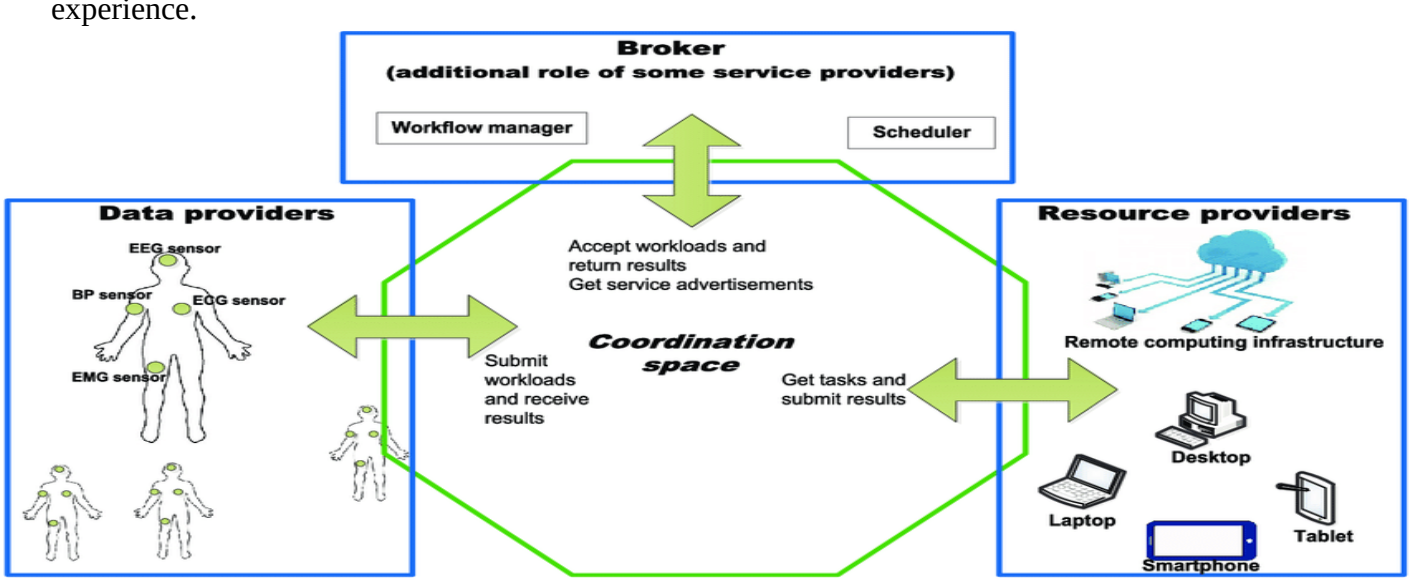
The paper discusses the utility of Internet of things (IoT) in healthcare and also throws light on the point of contention which the policy makers should keep in mind and suggesting the best way forward.

Keywords: CoAP, ECC, efficiency, data protection, Interoperability.

Introduction:

The evolution of IoT can be traced back to the days when the concept was first coined by a member of the Radio Frequency Identification (RFID) development community in 1999, and it has recently become more relevant to the practical world largely because of the growth of mobile devices, embedded and ubiquitous communication, cloud computing and data analytics. Internet of Things (IoT) can be better understood by defining the IoT. Internet of Things, IoT alike its name; can be referred to as the Internet of everything. [1] It can also be regarded as an Industrial Internet. It is the latest technology that has proven its existence worldwide in terms of a network of machines or the devices that can interact with each other. This is the most significant area that

needs to be worked on for the future technology and has gradually received a lot of attention from various users and industries. Given the ever-increasing demand of and increasing penetration of Internet of Things (IoT), it is estimated that by 2020, 50 billion products will be connected to the Internet. In addition, the statistics shows that 6 products per person (approx.) are used. This means that the use of IoT will be enormous, and the performance will be six times more efficient. And this is obviously an enormous number to prove the future viability of IoT technology, given the fact that currently government is thinking on bringing 5G into Indian society the prospects and the demand of Internet of Things is growing to skyrocket each year. In addition to the introduction of IoT technology manufacturers, many other service sectors are on the verge of using IoT technology to generate revenue through improved services and make the business extreme. Retail Site Intelligence, a Kogan-based online-based retailer, is a comprehensive commerce platform for Video analysis, wireless things, computerized devices, portable sensors, IP cameras and video handling activities designed to help customers improve their shopping experience.



Literature Review:

From the research already in place, it was found out that IoT can be utilized as a preparatory work before making novel innovative business plans while considering the security, assurance, and interoperability. While IoT has many advantages, and the fact that Internet of Things is highly data oriented and uses high amounts of personal data which thus becomes very critical to ensure that the data is safe from intruders. Authentication is one of basic and important means to confirm data privacy and security. The nature of IoT devices as a resource contains devices required a special authentication schema that does not consume high computing and energy resources. Thus, it becomes very important for a country like India to have stricter check and regulatory mechanisms in place to ensure that data shared by the users is safe and the protected. ECC algorithm thus is a better way to manage data related concerns and privacy issues. The proposed authentication approach provides an efficient authentication mechanism with high security. Before Internet of Things, patients' interactions with doctors were limited to visits, and tele and text communications. There was no way doctors or hospitals could monitor patients' health continuously and make recommendations accordingly.

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The long waiting hours before seeing a doctor, inability to access doctors and hospitals when sick if the patient doesn't have any caretaker at home. With the society moving towards individualism and increase of the urban areas this problem is more pronounces and, in the future, will happen in a very great way, hence posing a great challenge. Thus, technology can move the routines of medical checks from a hospital (hospital-centric) to the patient's home (home-centric). The full application of this paradigm in healthcare area is a mutual hope because it allows medical centers to function more competently and patients to obtain better treatment.

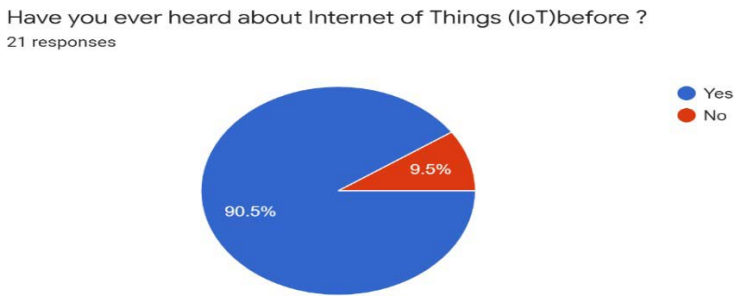
Methodology:

The research methodology, chosen for conducting the research was Quantitative research methodology. The design was descriptive in nature and collected at the same point of time. The data was recorded with the help of Google survey in the form of open ended and close ended questionnaires for a sample size (n)=21. It was shared in WhatsApp groups, through emails etc. and participants were asked to fill the survey voluntarily and maintaining the secrecy fully.

Internet of Things has revolutionized the current world scenario. There exists enough evidence to support it. But the less explored field is the healthcare technology and its utilization in it. The current study looks at Internet of Things through the broader scope of Healthcare and Internet of Things.

Result and Discussion:

Figure1.



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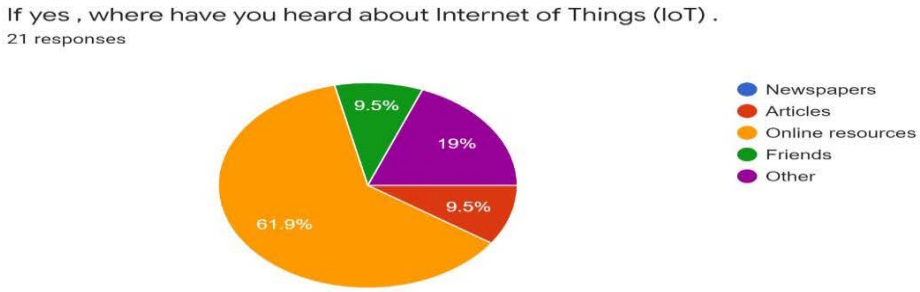

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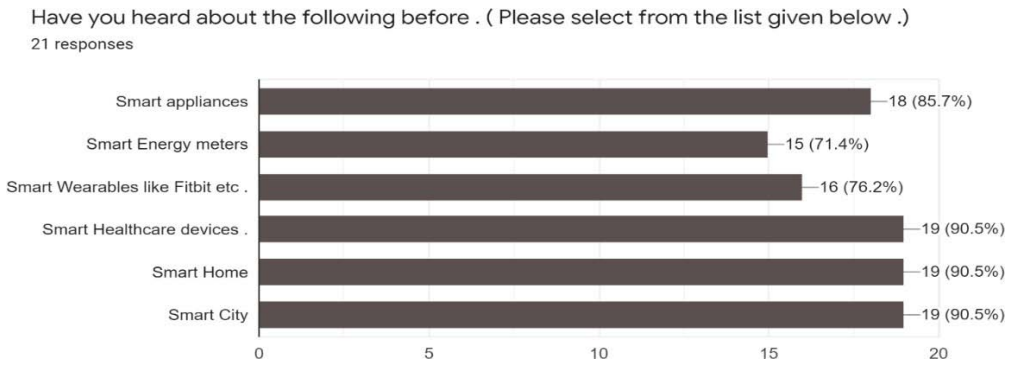

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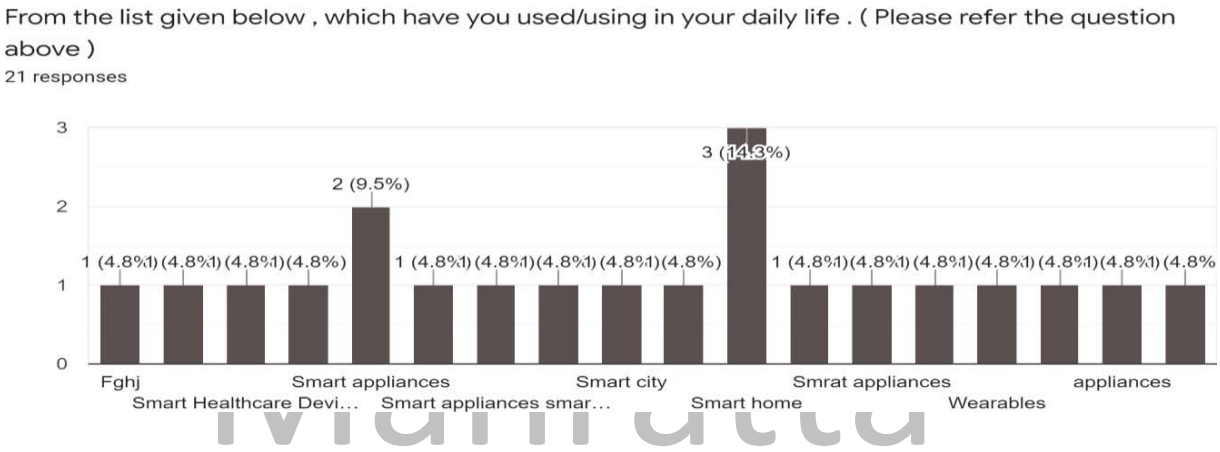

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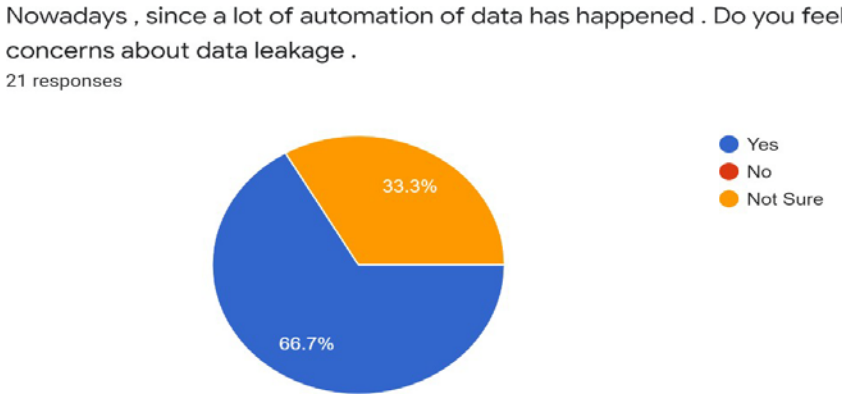

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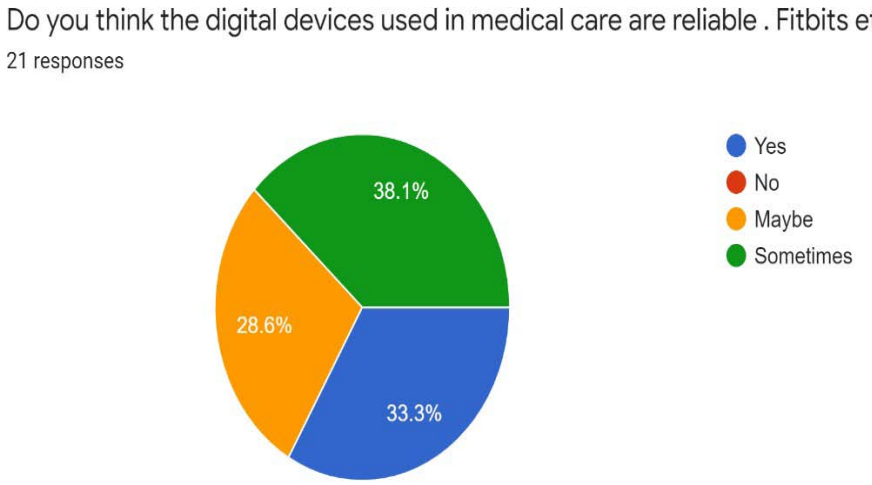

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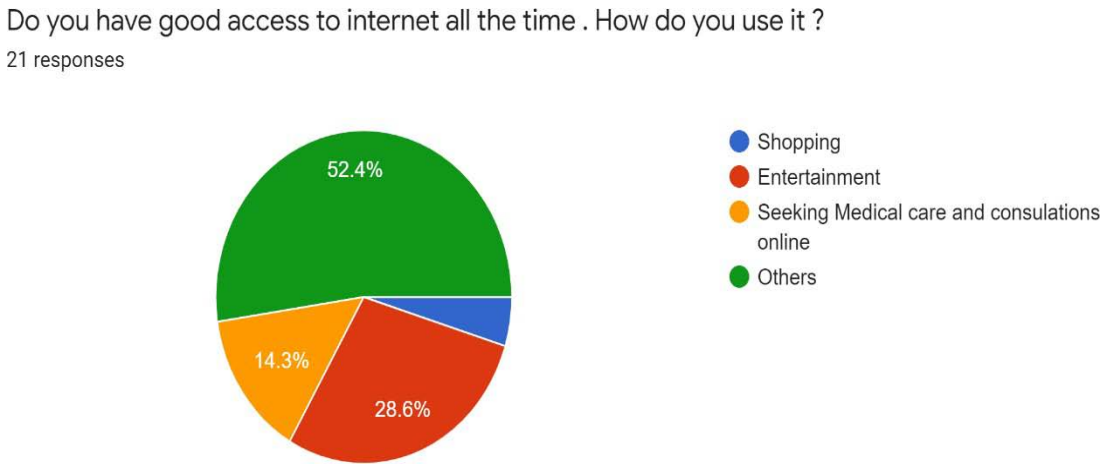

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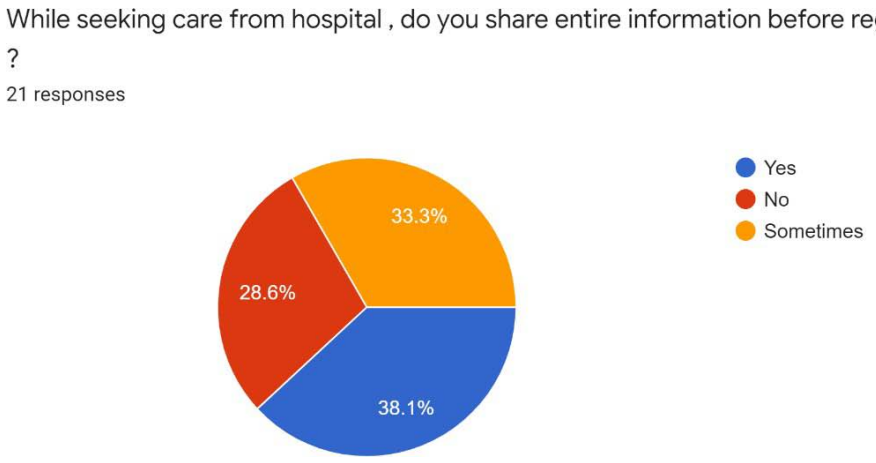
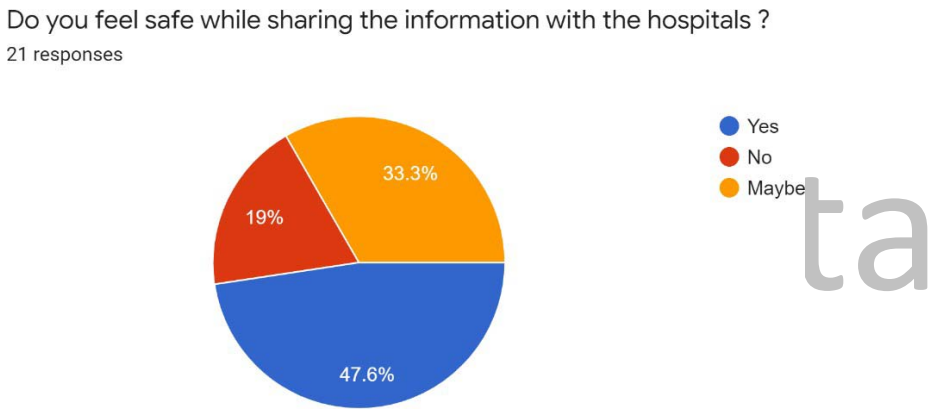


Figure9



Hence, from the data collected it can be concluded that there are some people who haven't heard about IoT in their lives till now. (9.5% out of 100 still haven't heard about IoT and rest others have heard about it in their lives at some point or the other. This suggests that there still exist some gaps in the current policy and utilization manner which is hindering some part of the population from effectively knowing about IoT. The survey gives strong evidence that internet remains a strong information disseminator for the society and most of the people (61.9% people) have heard about IoT from online sources, friends (9.5%), articles (9.5%) and other sources (19%) but none mentioned about newspapers which suggests that people are more used to reading from online sources rather than traditional system of published material like newspapers.

Conclusion and Recommendation:

Healthcare system has developed with the advance of smart IoT devices and sensors, cloud computing, The Healthcare is so developed for patient focused prediction load on the currently available infrastructure is the need of the hour. Diseases are diagnosed in their early stages by

remotely checking patient's health condition in real time. The exact and being accurate medicine, i.e., being precision will be the future of the healthcare system. As a future work, we intend to improve the functioning of the existing healthcare system and making strong, evidence-based policies which target the data privacy issues, regulating the prices of smart appliances, giving impetus to the indigenous researchers.

Since, India already is the Pharmacy of World if it can perform well in this field, it will also be a great source of revenue generation and at the same time improving the health of people across globe.Further the efficiency and penetration of such devices should be increased, keeping constant check on the agencies and their data sharing mechanisms, improving the internet connectivity in general and thus improving the digital divide which India at present faces and a general improvement in the trust and reliability amongst the users through advertisements, seminars, surveys etc.

Hence, by taking these steps the future of Healthcare in India can be improved and India can transit completely to Internet of Things in Healthcare which is a greener approach over traditional system of documentation, Since Cleaner and Greener economy is one of the Sustainable Development Goals (SDGs) set up United Nations.

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