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Future Of IOT

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Abstract: *Many businesses are being infiltrated by the Internet of Things (IoT). It offers an easy way to collect and analyse technical system data in order to detect and improve the performance of a variety of things in our personal and professional lives. With our present IoT technology, this technological revolution is unveiling new obstacles and issues. Artificial intelligence, Block chain, and 5G are examples of new solutions that claim to address these issues. With the Internet of Things (IoT) gradually growing as the next phase of the Internet's growth, it's more important than ever to identify the numerous possible areas for IoT applications, as well as the research problems that come with them. IoT is predicted to enter practically every aspect of daily life, from smart cities to health care, smart agriculture, logistics and retail, and even smart living and smart ecosystems.*

Keywords - *Internet of things; agriculture; automation; data flow; Iot technologies, Wireless sensor Networks, Future of Internet*

I. INTRODUCTION

The Internet is a communication network that connects people to information, whereas the Internet of Things (IoT) is a network of completely unique addressable physical objects with varying degrees of processing, sensing, and vibration capabilities that share the ability to interoperate and communicate using the Internet as their common platform. As a result, the Internet of Things' primary goal is to enable items to communicate with other objects, as well as persons, at any time and from any location, utilizing any network, method, or service. The Internet of Things (IoT) is progressively becoming regarded as the next step in the growth of the Internet. Ordinary devices will be able to connect to the internet and achieve a variety of goals thanks to the Internet of Things. Only about 0.6 percent of devices that can be connected to the Internet of Things have been connected thus far. However, by 2020, it is expected that over 50 billion gadgets will be connected to the internet. The Internet of Things (IoT) is a new paradigm that allows electrical gadgets and sensors to communicate with each other over the internet to make our lives easier. Smart gadgets and the internet are being used to bring novel solutions to numerous challenges and issues, and IoT is becoming a significant part of our lives that can be felt all around us. IoT is a technology that brings together a wide range of smart systems, frameworks, intelligent devices, and sensors. Furthermore, it makes use of quantum and nanotechnology in terms of storage, sensing, and processing speed, which were previously unimaginable. Press stories, both online and in print, are used to show the potential effectiveness and usefulness of IoT reforms. It might be used as a foundation for developing new innovative business concepts while keeping security and interoperability in mind. A great transformation can be observed in our daily routine life along with the increasing involvement of IoT devices and technology. One such development IoT is the concept of Smart Home Systems (SHS) and appliances that consist

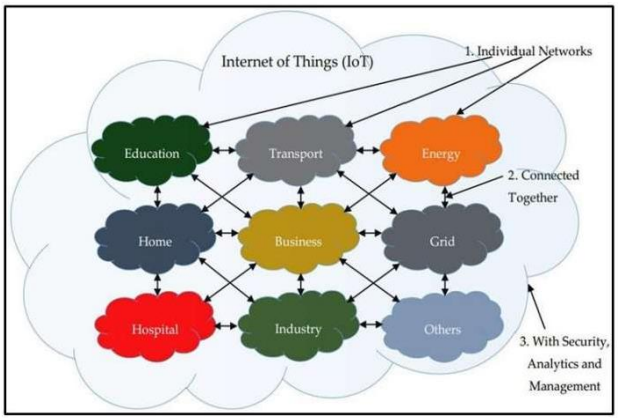


Fig. 1. IoT can be viewed as a Network of Networks [3].

With the increased use of IoT devices and technology, we are experiencing a huge change in our daily routine. The concept of Smart Home Systems (SHS) and appliances, which consists of internet-connected devices, home automation systems, and reliable energy management systems, is one example of IoT development. Another significant achievement of the Internet of Things is the Smart Health Sensing System (SHSS). SHSS involves the use of small, intelligent devices and equipment to help human health. These devices can be used both indoors and outdoors to check and monitor various health issues, fitness levels, and the number of calories burned in the gym, among other things. It's also being used to keep a close eye on critical health conditions in hospitals and trauma centre. As a result, by facilitating the medical domain with high technology and smart devices, it has changed the entire scenario. In order to improve the lives of the disabled and senior citizens, IoT developers and researchers are actively involved. IoT has performed admirably in this area, providing a new direction for such people's everyday lives. Because these devices and equipment are very cost effective in terms of development and are readily available within a reasonable price range, the majority of people are taking advantage of them. They can now live a normal life thanks to the Internet of Things. Transportation is another important aspect of our lives. The Internet of Things has brought about some new advancement that has made it more efficient, comfortable, and reliable. At numerous signalized across major cities, intelligent sensors and drone devices are now controlling traffic. Furthermore, vehicles are being introduced to the market with pre-installed sensing devices that can detect upcoming heavy traffic congestions on the map and suggest a route with less congestion. As a result, IoT has a wide range of applications in both life and technology. We may conclude that IoT has a lot of potential in terms of technological advancement and human convenience.

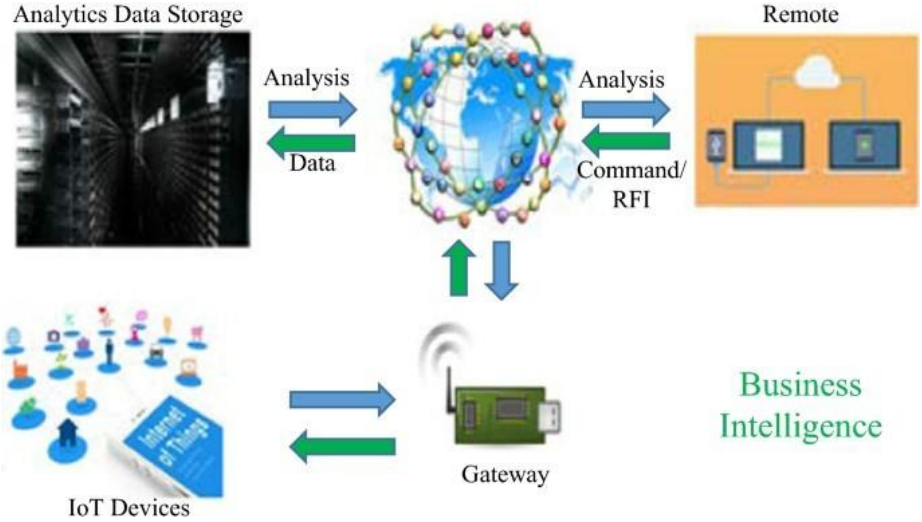


Fig 2. IoT Architecture for Agriculture

II. IOT IN SMART CITY

Our world is becoming smarter as a result of intelligent devices. Smart Things are a collection of connected gadgets that can be monitored and controlled using a central processor and online services. Smart Things is now supporting popular connected devices like the Balkan Demo family of gadgets, Philips Hue color changing lamps, and SunOS home audio systems. The concept of smart items and the Internet of Things has recently gained traction. Smart Things users will be able to control and automate today's additions directly through the Smart Things applications, just like they can with those items. Smart refrigerators, washing machines, televisions, other household appliances, smart shoes, and smart phones are already commonplace, but user experience design for the Internet of Things is still a relatively new concept. Smart Things is one of the most recent technologies introduced by Kick starter's innovators. Design firms such as IDEO and frog design are usually tasked with creating products that combine software interface, device design, and service design - all of which are important aspects of the Internet of Things. The global Internet's shift to IPv6 is currently ongoing.

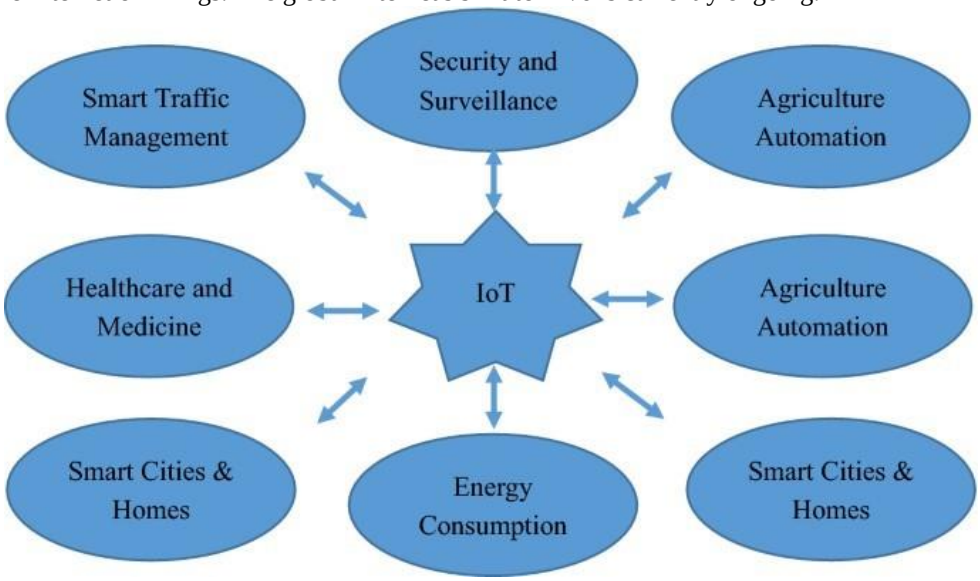
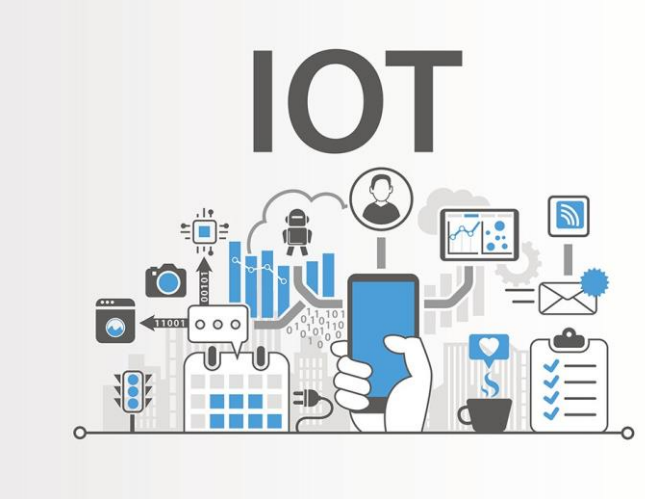


Fig 3. IoT in Smart City

III. FUTURE OF IOT

Any new technology brings with it a level of doubt and business risk. In the case of IoT, it has been discovered that many of the hazards are not physically real, but are twisted or misinterpreted. While fully developing the IoT vision will take time, the building blocks to begin the process are already in place. The major requirements, such as hardware and software assets, are either in short supply or in development; it is also true that the security and confidentiality problems of IoT devices have not been adequately addressed during the last decade. Stakeholders must collaborate and follow open standards in order to make International Journal of Computer Science & Information Technology (IJCSIT) Vole 10, No 2, April 2018 17 a success. The Internet of Things is dependable, secure, and interoperable. As a result, secure services can be given in a seamless manner. Nearly the next five years, the Internet of Things is predicted to generate over $19 trillion in revenue. However, there is a problem with this: these 'things' are wrapped in myths, some of which are influencing how businesses design apps to support them. A diagram depicts the IoT Market in 2015 and 2020. In 2015 and 2020 (anticipated), the percentage of total connected devices and the percent of market revenue of numerous sectors including as healthcare, transportation & automotive, retail & banking, and industrial & manufacturing were compared. According to the above graph, some areas, such as healthcare, commercial buildings, smart homes, and transportation & automotive, may experience an increase in proportion over time, while others, such as industrial & manufacturing, consumer electronics, and retail & banking, may see a decline. However, there are several misconceptions about the IoT's unmistakable future. Let's take a look at each one individually

Fig 4. IoT for Future



IV. IOT

The Internet of Things is a hot topic in the technology sector, policy circles, and engineering circles, and it has made headlines in both the trade and popular press. This technology can be found in a wide range of networked devices, systems, and sensors that take advantage of advances in processing power, electronics downsizing, and network linkages to provide previously inaccessible capabilities. A variety of conferences, publications, and news articles explore and debate the potential implications of the Internet of Things revolution, ranging from new market prospects and business models to security, privacy, and technical interoperability concerns. The increasing use of IoT devices has the potential to change many parts of our lives. Consumers will benefit from new IoT items such as Internet-enabled appliances, home automation components, and energy management devices, which will provide greater security and energy efficiency. Other personal IoT gadgets, such as wearable fitness and health monitoring devices and network-enabled medical equipment, are revolutionizing the delivery of healthcare services. This technology has the potential to benefit those with disabilities and the elderly by increasing their freedom and quality of life at a low cost. IoT solutions such as networked automobiles, intelligent traffic systems, and sensors embedded in roads and bridges are bringing us closer to the concept of "smart cities," which help reduce traffic and energy consumption. By improving the availability of information along the value chain of production using networked sensors, IoT technology has the potential to alter agriculture, manufacturing, and energy production and distribution. However, the Internet of Things creates a number of difficulties and obstacles that must be explored and solved before any benefits can be realized. Several firms and research organizations have made various predictions regarding the influence of IoT on the Internet and the economy over the next five to 10 years. Cisco, for example, predicts that by 2019, there will be more than 24 billion Internet-connected items. By 2020, Morgan Stanley predicts 75 billion networked devices.

Fig 5. IoT for Future

Looking ahead, Hawaii predicts 100 billion IoT connections by 2025, boosting the stakes even higher. According to the McKinsey Global Institute, the financial impact of IoT on the global economy might range from $3.9 trillion to $11.1 trillion by 2025. While the range in projections makes any exact number questionable, the data as a whole suggests significant growth and influence. Some see the Internet of Things as a game-changing, completely networked Smart Thing of progress, efficiency, and opportunity with the ability to add billions of dollars to industry and the global economy. Others fear that the Internet of Things is ushering in a new era of surveillance, privacy and security breaches, and consumer lock-in. The evolution and concept of Smart Things, as well as the issues associated with IoT, will be discussed in the next part

V. INTERNET OF THING CHALLENGES

The Internet of Things presents significant obstacles that may stop it from realizing its full potential. Security, privacy, Interoperability, and standards, as well as legal, regulatory, and rights issues, as well as developing economies and Development, are among the obstacles.

5.1 Security: Many IoT deployments provide new and distinct security issues. Addressing these issues and ensuring IoT product and service security should be a top concern. Users must have confidence in the security of IoT devices and related data services, especially as this technology becomes more widespread and integrated into our daily lives. By leaving data streams unprotected, poorly secured IoT devices and services might act as potential entry points for cyber assault and expose user data to theft.

5.2 Privacy: The Internet of Things' full potential is dependent on solutions that respect individual privacy preferences over a broad range of expectations. The data streams and user specificity provided by IoT devices can unlock amazing and unique value for IoT users, but privacy issues and possible downsides may deter widespread adoption. This means that user privacy rights and expectations must be respected in order for users to have faith in the Internet, linked devices, and related services.

5.3 Interoperability: Interoperability is described as the ability of two or more systems to share data and use that data. Interoperability is critical in the Internet of Things because it will contain a variety of heterogeneous devices, networks, and systems that must operate together to form an Internet of Things.

5.4 Legal, Regulatory, and Rights Issues: The use of IoT devices presents plenty of new regulatory and legal challenges, as well as exacerbating legal issues. The issues are broad, and the quick pace of development in IoT technology frequently outpaces the ability of governmental, legal, and regulatory systems to react.

5.5 Emerging Economy and Development Issues: The Internet of Things has a lot of potential to aid emerging and developing countries in terms of social and economic benefits. Sustainable agriculture, water quality and use, healthcare, industrialization, and environmental management are just a few examples. As a result, the Internet of Things shows promise as a tool for fulfilling the UN's Sustainable Development Goals. The wide range of IoT challenges will not be limited to developed countries. Developing countries will also need to respond if they are to reap the benefits of IoT. Infrastructure readiness, market and investment incentives, technical skill requirements, and policy resources will all be addressed as well as the special demands and obstacles of implementation in less developed regions.

VI. CONCLUSION

Through various technologies and applications, IoT has been gradually introducing a sea of technological changes into our daily lives, which in turn helps to make our lives simpler and more comfortable. IoT applications have several uses in medical, manufacturing, industrial, transportation, education, government, mining, and habitat, to name a few. Despite the numerous advantages of IoT, there are significant limitations in IoT governance and deployment. The best part of the Internet of Things is that it improves human life quality, increases operational efficiency, and handles situations where human involvement is not possible. At the same time, the Internet of Things poses significant challenges that may prevent it from attaining its full potential. In the future, we must place a greater emphasis on the Internet of Things in terms of development, deployment, architecture, global standardization, and ethical concerns. In order to realize the potential benefits for individuals, society, and the economy, we must also focus on the obstacles related with IoT.

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