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INTERNET OF THINGS: REVOLUTIONARY APPROACH FOR FUTURE TECHNOLOGY

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ABSTRACT

IoT, The New Paradigm Which Has Changed the Lifestyle to a High-Tech Level. The Smart Cities, Populations Control, And Some Industries Are the Major Transformations That Are Developed by Using IoT. It Is Applicable for Both Technological and Social Implementation. The Analysis of Big Data with Respect to IoT Will Also Been Discussed. This Article Will Be Also Be Helpful to the Readers to Estimate the IoT and Its Applications in Real World Scenario.

Keywords:

IoT, Smart City, Privacy, Security, Sensor,

INTRODUCTION

IoT means Internet of things. This is a system which relates the computing devices both digitally and mechanically. IoT is progressively becoming the best aspect of our lives that is around us. The great transformation in our daily life with the involvement of IoT. It has more importance in the economic growth and industrial also. It has large scope for technology and humanity. It has been applied in agriculture automation. IoT ins 5 layers that define the functionalities. They are perception, network, middleware, application, and business layer. The service of every layer will be of super quality. It is devoted to the improvement of the latest technologies. I the things that are around us. This is applied in the collection of data and monitoring. It assists in the information processing and transportation systems. According to general manufacturing IoT is also in the construction and industrialization fields. IoT scalability will be an elevated level. By using IP address, it connects the devices. IoT takes 50 to 100 trillion objects for encoding.

LITERATURE SURVEY

In the last few years, the importance of the IoT has taken charge. Here the fig shows the various transformations. The IoT projects were in the worldwide in the global market share. Smart city is the trendiest application of the IoT. whereas Smart home is as well. Smart homes consist of the IoT provided appliances like Air conditioners, Television, Audio streaming and Video streaming devices, which are used to communicate with each other to provide security and communication of energy. The smart home provides security and consumption of energy. The smart home provides the benefits through IoT.

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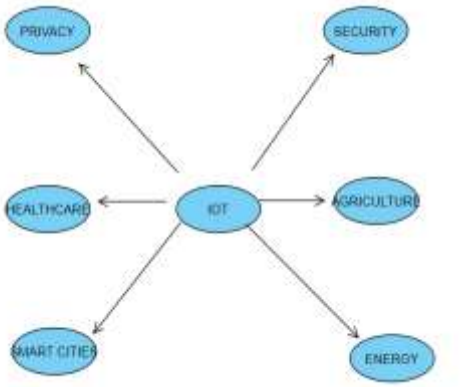

Fig.1: *Applications of Internet of Things*

The survey concentrates more on security concerns at individual layers. The applications of IoT used in our real life. They are benefitting the frames using current technologies through the IoT. The framework will be provided to get their objective. The increase in scalability will be increase in the Architecture.
Authentication services are more important for keeping the valuable information safe without loss of the valuable information. The important application of the internet of the things is development of agricultural standards.

ARCHITECTURE AND TECHNOLOGIES

The IoT contains 5 layers. They are perception layer, application layer, network layer, middle ware layer, business layer. In this bottom layer is perception layer which contains physical devices like RFID and barcodes and objects are connected physically in the IoT. The network layer is used as the transfer the information from perspective to the processing system. This transformation can be wired or wireless communications like WIFI, Bluetooth etc... The middle layer processes the information and send to the application layer. The layer which controls all the IoT information is called business layer. This layer is used in the essential functions used for IO Operations
Scalability and openness are the main key design for the efficient architecture for IoT. Efficient architecture should be needed for the massive quantity of streaming the data in the IoT system. The most challenging issues in the IoT is security and privacy. There are some rules to maintain the moral values and ethics to prevent the people from violation. Quality in the service is much more important aspect in the IOTR. It helps in maintaining the quality, efficiency of IoT devices

MAJOR KEY ISSUSES AND CHALLENGES

The system which are based on IoT are involved in aspects of human lives and many technologies that are entailed in the transfer of data between embedded systems have made it composite and this has given rise to many issues and challenges. The growing technology requires growth in challenges for the up-to-date IoT system. Hence the IoT developers should be able to provide the solutions for the arising issues.

Security and Privacy Issue

Security and privacy are the most critical issues in IoT because of threats and cyber-attacks. The inadequate authentication and authentication give rise to device level privacy. The security process should be fixed at each level of IoT Statement to stop security threats. Many protocols are evolved to make sure the security and privacy. One of the protocols are secure socket layer (SSL) and datagram Transport layer security (DTLS).

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Fig. 2*: *Privacy issues in Internet of Things

Interoperability/Standard Issues

The information between different IoT systems can be easily exchanged through interoperability. Due to the diverse behavior of various technologies used for IoT evolvement interoperability issues use arise. They are 4 interoperability levels. They are technical, semantic, syntactic and organization. So, to solve the issue of interoperability, the researchers have developed many solutions which are also known as interoperability handling approaches.

The other key issues of IoT

- Ethics, law, and regulatory rights
- Scalability, availability, and reliability
- Quality of Service

MAJOR IoT APPLICATIONS

IoT is fully committed to give public as well as financial facilities and development to people and society which include economic development, industrialization, water quality maintenance etc... And, environmental stability is one more major worry. So, the IoT developers should be bothered about the environment effect of IoT devices to resolve the negative effect. Researchers are busy in evolving highly effective IoT systems to observe several health issues like diabetes, obesity etc. Many issues belonging to the environment, rgy and healthcare are considered by several studies.

Smart City, Transport and Vehicles

IoT is changing society gradually with the concept of smart city, transport, and vehicles. Quick development is being done with the help of technologies like ML, Natural Language processing to know the need and usage of technology at home. Different technologies like cloud server technology, wireless sensor networks should be used along with IoT servers to provide an effective smart city. IoT is also essential in maintaining the vehicle's health. Self-driving cars can be able to communicate with other self-driving vehicles through intelligent sensors. Hence this leads to the traffic flow smoother than the human-driven cars that follow to drive in a stop and go manner.

Agriculture and industry automation

As we aware that the world's population is growing day-by-day hence feeding such massive population is not an easy thing. Hence there is need to update the agriculture approach which is done with the help of IoT devices. Green house technology is one of the important approaches used. Industry automation is one more important application of IoT which provides solutions for quality control, coordination, and factory management etc.

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IMPORTANCE OF BIG DATA ANALYSIS IN IoT

The IoT contains some devices, sensors to communicate the system with one another. With the expansion of the IoT, the count of the system devices and sensors are rapidly increasing. The communication in this IoT transfers a large amount of data. This data is large so it is called Big Data. The traffic control system will be done through the sensors and devices. And second to second the patient's health care report will be generated without throwing an error. The IoT consists of security and privacy because these are the main important aspects for the users. Authentication support also should be provided. And there are many effective technologies like cloud computing, artificial intelligence and machine learning are implemented and improved these days. Cloud is nothing but the virtual machine and artificial intelligence is the trendiest technology that has been ever been used.

CONCLUSION

IoT developers and researchers are collaborating to bring the technology to a wider audience and to benefit society as much as possible. However, improvements are only possible if we consider the various issues and flaws in the system. The current state of technology several issues were discussed in this survey article. The obstacles that IoT developers must consider to create a better product model. Also highlighted are significant IoT application areas in which IoT developers and researchers are involved. Because the Internet of Things (IoT) not only provides services but also collects data, creates a massive amount of data as a result, big data analytics has become increasingly important. This has been explained and can produce accurate decisions that can be used to construct a better IoT system.

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