A SURVEY: APPLICATION OF IOT

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Abstract - *Internet of things is a new and recent technology which gives permission to the user to connect anywhere, anytime, anyplace and to anyone. The main aim of this paper is to discuss the applications of internet of things. In this paper, various applications of internet of things such as home automation, smart city, smart agriculture and smart industry are explained. Recently, the most widely used networking concept is IoT. If we are using IoT technology in appliances, then it will provide more benefits. The numbers of research and survey papers on IoT has been increased day by day since 2009 and IoT is most widely used in some 6 to 7 applications which are most widely used in all over the world.*

Key Words: **IoT applications, smart home, smart city, smart agriculture and smart industry, etc.**

1.INTRODUCTION

The Internet of Things is used to refer the rapidly growing network of connected objects that are able to collect and exchange data using embedded sensors. Cars, lights, refrigerators, and more appliances can all be connected to the internet of things. The Internet of Things acts as an essential driver for customer facing innovation, data automation, digital transformation and new applications, business models across all sectors. As the technology rises, the cost of product and applications will become high. Consumers search for ways to reduce consumption. IoT offers a sophisticated way to analyze and optimize use not only at device level, but throughout the entire system of the applications in which IoT's are used. IoT has the ability to discover problematic consumption from issues like older appliances, damaged appliances, or faulty system components.

According to [1], there are number of applications of IoT. In this paper, the four applications are considered. This paper is mainly focuses on the analysis of various applications of IoT. This paper is organized as follows; section II illustrates the research objective. The section III illustrates the applications of IoT in various fields. Section IV describes the results and discussions. The paper is concluded in section V.

2. OBJECTIVES

Our objectives of this survey are as follows:

• Survey of an IoT network based applications.
It provide based authentication for the device control using internet of things.

3. APPLICATIONS OF IOT IN VARIOUS FIELDS

3.1 Smart Home

IoT devices are used to monitor and control the mechanical, electrical and electronic systems used in various types of buildings (e.g., public and private, industrial, institutions, or residential). Home automation is the process of controlling home appliances automatically using various control system techniques. The electrical and electronic appliances which are used in the home such as fan, lights, outdoor lights, fire alarm, kitchen timer, etc., can be controlled using various control techniques. A. The possible means of real-time monitoring of home appliances for reducing energy consumption and monitoring occupant behaviors. B. The integration of smart devices using IoT in the built environment and how they might be used in future applications

Smart Home is the most searched IoT associated feature available on Google. Don't be surprised with IoT companies which are building products to make your life simpler and convenient. Smart Home has become the revolutionary ladder of success in the residential spaces and it is predicted Smart homes will become as common as smart phones in the world. Smart Home products using IoT are promised to save time, energy and money. With Smart home companies like Nest, Eco bee, Ring and August will become household brands and they are planning to deliver a never seen before experience.
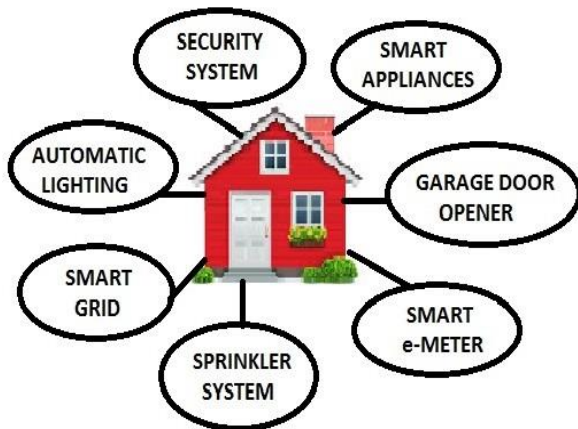

Fig -1: Smart Home System

3.2 IoT in Agriculture

With the continuous increase in population of world, demand for food supply is extremely raised. Governments all over the world are helping farmers to use advanced techniques and research to increase food production. Smart farming is one of the fastest growing fields which is used in IoT. Sensing for soil moisture and nutrients, controlling water usage for plant growth and determining custom fertilizer are some simple uses of IoT in agriculture. The IoT contributes significantly towards innovating a farming method. Farming challenges caused by population growth and climate change have made it one of the first industries to utilize the IoT in this sector.

The integration of wireless sensors with agricultural mobile apps and cloud platforms helps in collecting vital information pertaining to the environmental conditions like temperature, rainfall, humidity, wind speed, pest infestation, besides others linked with a farmland, can be used to improve and automate farming techniques, take informed decisions to improve quality and quantity and minimize risks and wastes.
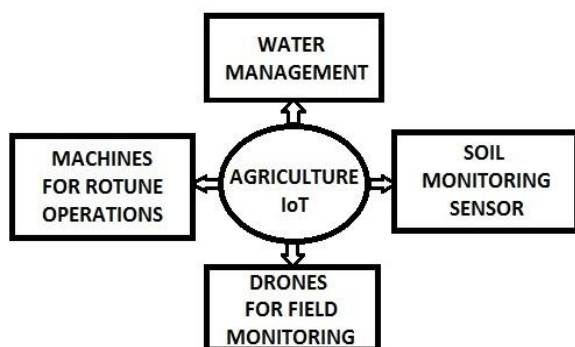

Fig -2: Smart Agriculture System

3.3 Smart City

Smart city is another powerful application of IoT generating curiosity among population of world. Smart surveillance, automated transportation, smart energy management systems, water distribution systems, urban security and environmental monitoring all are examples of internet of things applications for smart cities. IoT will solve major problems which are faced by the people living in cities like pollution, traffic congestion and shortage of energy supplies etc. Products like cellular communication enabled Smart Trash Can will send alerts to municipal services when a bin needs to be emptied. By installing sensors and using web applications related to parking, citizens can find free available parking slots across the city. Also, the sensors can detect meter tampering issues, general malfunctions and any installation issues in the electricity system.
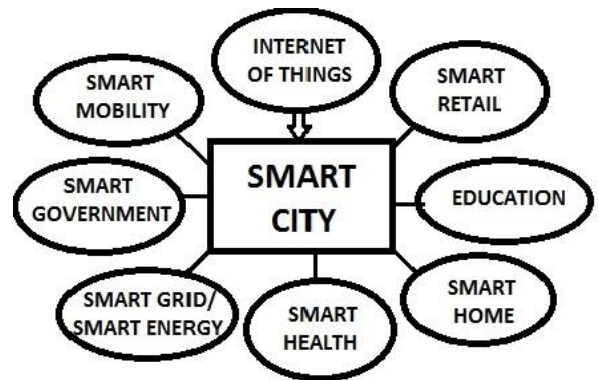

Fig -3: Smart City System

3.4 Smart Industry

- Machine to Machine Applications: The machines are used to auto-diagnosis the problem and control.

- Indoor Air Quality: Monitoring of oxygen levels and toxic gas inside chemical plants to ensure workers and goods safety in industries.

- Temperature Monitoring: Monitoring of temperature inside the industry.

- Ozone Presence: In food factories, the monitoring of ozone levels during the drying meat process.

- Vehicle Auto-diagnosis: Information collection from Can Bus to send real time alarms in emergencies or provide advice to drivers.
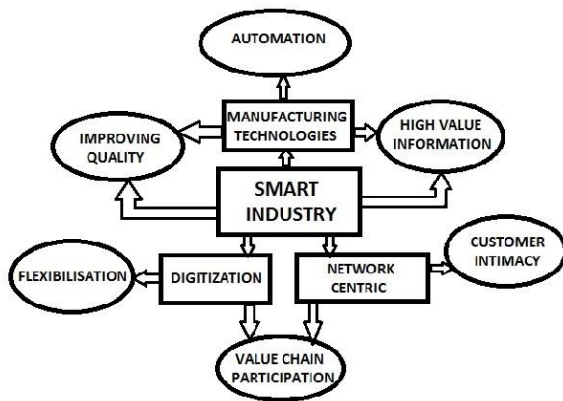
Fig -4: Smart Industry System

3.5 Wearable Electronics

Wearable electronic devices are small devices which are worn on the head, neck, arms, torso & feet.

Current smart wearable devices include:

[1] Head = Helmets, glasses
[2] Neck = Jewelry, collars
[3] Arm = Watches, wristbands, rings
[4] Torso = Clothing, backpacks
[5] Feet = Socks, shoes

4. RESULTS AND DISCUSSIONS

The future of internet of things is more fascinating where billions of things will be talking to each other & human intervention will become least. There are many more areas where an internet of things is making an impact. An IoT can also be used in the detection of environmental issues. Numbers of papers were published since 2009 on IoT and its application. The innovation of IoT will drive the future of technologies; various innovative and creative products will design.

The Internet of Things will help a business gain efficiency from a wide range of equipment, improve operations and increase customer satisfaction. It will improve a public safety, transportation and health care with better information and faster communications of this information. While there are many ways that the Internet of Things could impact society and business, there are at least three major benefits of an IoT that will impact every business, which include: communication, control and cost savings.

5. CONCLUSION

The Internet of Things, the things which can communicate with each other via Internet, access data on the Internet, store and retrieve data and interact with users. World has been changed completely due to internet based applications development. Interaction in all scenarios become seems impossible without it. IoT has a potential to broaden its horizon by enabling communication between a smart objects. A set of survey papers related to applications which treats IoT related research is selected from research paper database.

It is cleared that an IoT is a very important research subject and important for the science policy stake-holders to understand the research trend. This paper provided an analysis of the various applications of IoT. The analysis result had shown that the major applications of IoT are in home automation & building automation, smart industry, smart agriculture and smart city.

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