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Futuristic Scope Of Iot And Its Approach Towards Building A Smart Human Being Life

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Abstract:

With a rapid progress of technology many research scholars are looking towards the concept of Internet of Things (IoT) that promises a smart human being life by allowinga communication between objects, machines and everything together with peoples. IoT represents a system which consists a thing in the real world, and sensors attached to or combined to these things, connected to the Internetvia wired andwireless structure of network.IoT allows objects to be sensed and / or controlled remotely across existing network infrastructure, creating good chances for high integration of the physical world into Computer-based set-up, and result in better correctness, effectiveness and economic benefit. By the technology of the IoT, the world will become smart in every aspect, since the IoT will provides a means of making cities smarter, smart healthcare, smart homes and buildings, in addition to many important applications like smart energy, grid, transportation, waste management and monitoring. In this paper we review a concept of many IoT applications and future possibilities for new related technologies in addition to the challenges that are faced by the implementation of the IoT.

Key Terms: *Applications, Communication, Internet of Things, Implementation, Network.*

1. INTRODUCTION

The idea of IoT is to connect many objects to the internet that are physical at a rapid rate. IoT with the help of internet, allow objects to gather, transfer and interchange data in between to coordinate decisions. IoT allows devices to be recognized and controlled remotely across existing network infrastructure, creatingchances for quickest amalgamation of physical world into computer-based systems and resulting in improved coherence and correctness. This new technology works intelligently and recognize the objects by themselves. Finally, by IoT, physical objects can be linked at any moment, anyplace, with different things using any network and any service. IoT can be implemented in different sectors like Home automation, Enterprises, Emergency services, Building management, Agriculture

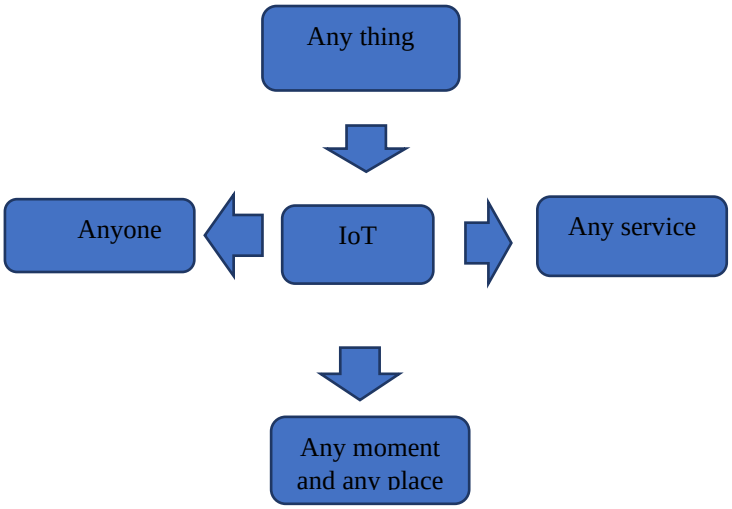

Fig. 1: Concept of IoT

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INTERNET OF THINGS-HOW IT WORKS?

Before we understand how it works, it is important to analyze what are the important components that are involved in an IoT system.

- NFC and RFID: These two provide simple low energy, adaptable options to identify and access tokens. Radio Frequency Identification- This technology employs two-way transmitter and receivers to recognize and track tags that are associated with different objects. Near-field communication: It is a collection of communication protocols for electronic devices.
- Sensors: These are smart gadgetswhich help to collect, send and act on data that they received from their specific environments; they work without human interference.
- Smart Network: As soon as data is collected, it is transmitted to the respective IoT Platforms i.e., Cloud Infrastructure, but to do this the devices need a means for communication. That's when the concept of connections like WAN, Wi-Fi, Bluetooth, cellular networks came into existence. All the mediums are unique and must be selected carefully for improved results.
- IoT Platforms/Cloud: Sensors of IoT are basically resource constrained and always need a destination where they can transfer the data. To transmit the data these IoT sensors typically uses an MQTT (Message Queuing Telemetry Transport) protocol. This protocol acts like a mediator that receives and transmits required particulars to whoever subscribes to it. The MQTT server is usually also called the IoT Server.
- Processing of Data: once data reaches the cloud platform the data has to be so that correct action can be implemented. IoT applications are made in such way that it can process all the data at a faster rate.
- User Interface: Finally notifications are sent to the user about a particular action to the respective IoT applications.

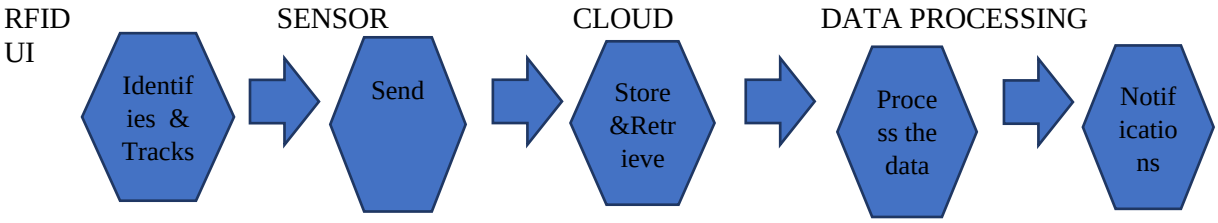

Fig 2. Working of Internet of Things (IoT)

APPLICATIONS OF IOT IN HUMAN LIFE

IoT can be used for human life in the following fields:

I. Personal and Home.

Health care/Health Monitoring: Real-time Health status and Prognosticative information to help in the field, or policy decisions in pandemic situations. Initially all the data and information of people related to his/her health is stored in a Database and access to a specific person's details is given to their respective doctors only. In this process Bio Sensors are used to create each individual's database.
Emergency Services: As number of devices are connected over internet it is of high priority that how IoT can guide in Emergency Situations. Whenever there is a danger arises these devices give prior warning, specially it guides in communication between emergency service personnel, Public Warning Systems. For example, in any fire emergency, it provides the information about the harmful material present, and also monitor the temperature in the current situation. It also helps in leading first responders in emergencies or from disaster situations different sensors are built into the infrastructure of the building to help them.
Mobility: Self Driven Cars, logistics were given smart tags.
Navigation/Geo-Data: State-of -the-art smart environment envisions and web-based Geo Information.

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Home Automation: In home automation IoT can help in different appliances like Refrigerator, Stove, Washer/Dryer, Light Bulbs and also assist in smart parking. Smart Lights are in great use in every household where they will automatically on when we enter into the room and gets off at the time of dispersal. Wireless Sensor Networks (WSNs) in combination with IoT offers smart energy management in buildings

II. For Enterprises

Smart Transportation: Digital transformation has begun to show its profound impact on the transportation and logistics industry. Taking the help of IoT transportation and logistics are making travelling safer, efficient performance and guidance on real-time traffic information and path optimization.

Water and waste Management: Here the role of IoT helps in checking the quality of water, usage & distribution calculation and methods to recycle it.

Building Management: IoT can help in controlling and monitoring buildings remotely. Installing IoT devices collect real-time actionable intelligence of a building's internal surroundings and security. Implementing IoT in smoke alarm and motion sensor in a building management highly increases property and occupant security.People can closely monitor their buildings and immediately identify doubtful activity, smoke, or other unenviable changes in building's condition or utility consumption.

Environmental Monitoring: IoT upgrades on this technology by minimizing the need of human labor, allowing continuous sampling, enhancing the range of monitoring by using sensors.

This mechanism allows us to avert substantial impurities and related disasters. Eventually, we can say that whole planet is made smarter with the use of this Environmental Sensors.

III. About Ourselves

By the help of IoT not only homes, cities and different systems are getting automated even it help us individually to know ourselves well. IoT systems can maintain track of our daily routine like

Are we doing exercise regularly?

Message tones?

Tracking about the places like where we are going?

Amount of time we spend in tweeting, texting?

How long it takes to get to work?

FUTURE SCOPE FOR IOT

Nowadays IoT is taking part and implemented far and wide which is of human concern like cities, cultivation, home, emergencies, healthcare etc.,.

Giant of search engine has already taken initiatives in the area of IoT. It is taking steps to remodel the IoT by placing their concept of placing the physical URL as future of IoT instead of apps.

Individuals will get obsessed to tech connections: Influence of IoT on people will increase highly in the coming decade. Benefits and ease of using IoT devices are the key things that attracts them.

Everyone says no to Unplugging: To get unplugged from internet will be very difficult by the end of the year 2025 and there will be no term such as Unplugging.

Artificial Intelligence-Bring Big change: AI will penetrate into every house, from smart home hubs to the lighting system, thermostats everything

Safety of people is major priority for many countries, to achieve this, many countries, specially European countries are investing huge amount of their GDP in making smart infrastructure like roads and bridges.

Increased attacks (DDoS): There will be an increase in cybercrimes and there will be substantial use of IoT devices to facilitate the DDoS attacks.

Future of IoT seems to be very vibrant as this is feeding and empowering Data Science and AI in a big way. Data received from IoT networks enables us to maintain effective tracking, prediction and control over various different industries.

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2. CONCLUSION

The entire paper explains about the benefits of IoT in making human beings' life smarter, applications and future scope of IoT. Even though IoT is facing some major problems, the situation may change and get better in the near future. There are innumerable benefits of this technology in human life.
Over 700 lakhs of different sensors, smart timers, smart mobile phones, washing machines, refrigerators, wearable devices are connected over internet till 2020.IoT can be even used in areas like maintaining crime records, implementing smart methods in Agriculture and poultry.It is also essential to take into consideration that the acceptance of this technology by the people who are not much fond of using gadgets and smart devices do not feel easy dealing with this will have a tough time with complex functionality. It's difficult to deal with these factors that might seriously decrease the dominant future of IoT.

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