Current Potential of IOT and Application Domains

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Introduction

The internet of things (IoT) is all about connectivity. In advance it's a collection of interconnected electronic devices, which collects data and transfer through the internet without any human interaction to provide services. It combines different types of technologies such as electronic devices, embedded systems, the internet, radio frequency identification (RFID), networks, sensors and communication technology to merge the digital world with the real world.

With the rapid development and usage of digital devices, the IOT is growing fast, making a huge impact on human life. This discusses recent approaches in IoT applications in various fields to understand how human life has been changed with IoT.

literature

Resent IoT research works are mainly focusing on how IoT can improve the life style of human. With the increasing availability of electronic health care devices and its connectivity, IoT grow fast in the field of health care. With the help of IoT technologies, it is possible to build a health care services which can request to read the glucose in the blood every morning and collect the patient's data, analyse and give valuable information and advices to the patient. [1]. IoT applies a lot in handling emergency situations. Home monitoring applications are there to help people with disabilities, elderly people or people with chronical illnesses such as heart failures, diabetes.

In spite of that hospitals apply IoT in many situations like to get the immediate support from doctors, nurses and the staff in emergency situations, to communicate with other hospitals and keep a track of historical data related to each patient [2].

With the development of the economy and technology human needs and their living standards get increase. With the concept of smart homes, IoT becomes

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more and more important. All the electronic devices in a smart home are connected and the owner can simply handle them remotely through a smartphone, tablet or computer. Users can adjust lights, control AC, manage the security system, monitor household appliances such as the refrigerator, the microwave oven, television, and even lock and unlock doors and windows. While improving living standards, IoT reduces resource consumption such as electricity, water. When the sensors, actuators are distributed and connected with the objects, human life gets more comfortable in many ways.

Smart cities are the best solution for all types of problems in cities; For waste management, smart waste containers are there to notify the truck when it is filled. This will optimize the route of the truck and minimize the waste collecting cost and improve recycling process. Sensors attached in a particular area such as a park monitor the air quality and share it with the people around. Can monitor traffic by GPS installed on modern vehicles and smart phones. With the use of different sensors and actuators, monitor and control the energy consumption for public lights, control cameras, traffic lights, etc. Smart parking, help the driver to find the nearest available parking slot and the sensors placed on the road can detect illegally parked vehicles.

People with visual impairments can benefit from blind navigation systems to find their way in supermarkets and roads. Supermarkets use RFID system along with a software to guide blind people in shopping. RFID tags are connected on the shop floor and the floor is divided in to cells containing store shelves.

Domain Of Application

According to literature discussed, I have Categorized IoT applications in to six main domains.
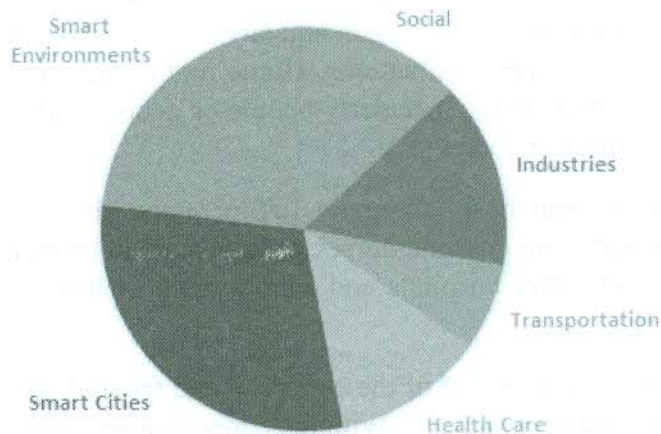
Smart environment domain

Smart environment domain, can be identified as comfortable offices, houses, industrial establishments, or leisure environments. Some of the smart behaviours in these environments are room light adjustments based on the daytime, security alarm systems, energy saving by automatically or remotely switching off electricity equipment when not required, automatic temperature adjustments.

Smart city domain

Smart meters are designed to supply water all over the city in an efficient manner. Traffic congestion applications alert drivers when an accident occur and also direct them to less congested routes. Likewise different applications are available for public security, energy saving, etc.

Industrial domain

Transport and logistics companies conduct real-time surveillance to move all items and products through the entire business process from supplier to consumer. The rapid technology enhancement and application of RFID s help to automate business processes and other installations of industries.

Social domain

These applications allow all type of users to communicate with other users and to make social communities. As the community is connected, everyone knows what each other do and what they have done in the past.

Health care domain

IOT related health care services support people to handle their health issues independently, stay safe and healthy.

Transportation

In assisted driving, sensors and actuators connected to vehicles and roads provide valuable information to both drivers and passengers. Also use these data to analyse traffic patterns.

Conclusion

The internet of things merges the virtual world and the real world. The application of IoT in different domains are extremely wide because of the rapid technology enhancement in embedded systems. Literature proves that the internet of things has become a trendy research area for last 15 years. As discussed here, within the next 5 to 10 year, IoT could make a huge transformation in human life style. When IoT comes to the industry level and dealing with sensitive data privacy is a critical matter to consider. This will be helpful for researchers in the

field of IoT, to identify the current potential of IoT applications and the main domains of application.

Keywords: Digital World, Smarat City Domain, Industrial Domain, Social Domain, Health Carce Domain

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