Smart Home Automation using Internet of Things

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Abstract—*Anyone who used to say that Internet has totally changed our society may be right, but at the same time, the main transformation actually lies ahead of us. There are several new technologies that are now emerging in multiple ways, which means the Internet is on the brink of a substantial expansion with big and small objects getting connected and identify their own web identity. Internet of Things is a vast network in our daily life, like from industrial applications to consumer home appliances, which helps us to share information and complete the activities while we are busy in other work. Home automation that mainly refers to controlling the home appliances and domestic features by remote control or by local networking is becoming popular because of its various benefits. Due to vast increment of technology, consumption of energy and power leads to highest peak so; there is a grave need to conserve these energy and power in every possible way.*

Keywords: *IOT, smart phone, wireless technology, common infrastructure.*

1. INTRODUCTION:

Smart home is collaboration of technology and services through a network for quality living. A smart home makes the entire house to be fully automated and hence provide convenience to everyday activities of life.

With the help of this technology, all the devices will act "smart" with better efficiency and scalability. It will also help us to improve the standard of living for growing population, conserve the resource constraints and to keep ourselves comfortable and safe in our home."Smart Home" is the term which is mostly used to define a residence that has appliances like light, heat, AC, TVs, computers, audio & video systems, security, and camera systems and many things that are capable of interacting with one another and can be controlled by local networking. An important feature of a smart home is conservation of the earth's limited resources and to serve it as per the need.

2. APPLICATIONS OF SMART HOME:

2.1. ECOSWITCH:

With the appearance of a traditional light switch and powerful energy management capabilities, the 'Ecoswitch' is an addition in the smart lighting devices. This Ecoswitch will act as an extension- cord, with the help of which people can move the switch according to the ease of their approach location .One of the biggest advantage of this switch is that, whenever any devices is connected to this switch and when that device will reach to the full use of its extent like complete charging of battery or etc. then an alert notification will be generated, to notify the person regarding the completion of work associated to that switch and in case, if no one is present there then, that switch will stop working till the next action is to be performed. The other significant use of Ecoswitch is that, it works along with the sensor, like sensing the presence of human breathe in the room and in case, if there is no one present inside the room then, after few seconds, the lights and fan of that room will automatically get turned off. Hence, with all these advantages associated with IOT, Ecoswitch will help to conserve the energy and power in a very smart manner.

2.2. WATER SENSING DEVICES:

As we know that, power and energy deals with the major role in the daily activities of life but, apart from that, 'water' is the biggest issue of concern for the survival of humans so, in the smart home there is a technique which helps us to conserve the water with the help of sensing device. The idea behind the use of this sensor is that, a water sensing device is fitted at the top of the water tank and when the motor starts to fill that water tank, then a point comes when the tank is about to fill.As soon as the water will touch that sensing device, then at that level the motor will automatically get turned off and prevent the tank from overflowing and the water being wasted.

2.3. SMART DOOR LOCK:

With the help of IOT, various techniques will be introduced for the safety and security purpose. 'Smart door lock' provides one of the greatest facilities to the home owner, to keep an eye on their home in their absence, so that they will protect their family members or kids from any unauthorized entry. Through this, when an outsider reaches the door then the face detecting sensor present in the door will capture the face and send the data to the owner via smart phone; if the person will be the known one then the door will open and in case, if there is a unknown person then the owner will restrict the person from taking entry into the house.

2.4. SMOKE DETECTING SYSTEM:

Most of the IOT based sensors like Smart Gas Leak Sensors, Smart Fire are the devices through which user can monitor their home with the help of the smart phones. The smoke detecting system is an IOT based device which can be accessed through any other IOT device and server application. This will help to send alarm to the user in case of LPG, propane or butane gas leak. This system uses the fire sensor along with the PIR sensor to effectively detect the fire and alert the fire department over IOT. Hence, this 'Smoke Detecting System' will sense all such gas leakage and fire action and make the home owner aware of all the inside actions.

2.5. SMART REFRIGERATOR:

This IOT based smart refrigerator replaces the normal refrigerator as it is cost effective, using various sensors. These smart refrigerators are able to sense or detect the quality and the quantity of food kept inside it. This system also checks the expiry of food products with the help of smart sensing technology. By sensing the barcode of the food product, this system will also help to notify the current status of the food items. If the food stock inside the refrigerator is below the threshold level, then at the same time the system will automatically send out a message to the owner about the situation of the stock in the refrigerator using short message service.

2.5. SMART HEALTH CARE KIT:

IOT based this health care kit, would help to analyze the health status of person which includes heart beat rate, blood pressure, ECG etc. and send out emergency alert to the doctor with full medical information and current status; hence, by this it will prove beneficial to conserve the time of both patient as well as doctor. With the help of this smart kit, every family member will come to know about their medical status at every possible instant of time.

3. CONCLUSION:

In this review paper, the concept of the smart home and the advent of the smart grid have been presented. This will also indicate that, "Smart Home will one day, be the way all homes are lived in", with all the attributes and measurements included in this and this will tend to provide a secure, safe and standard living for all the people. In the later future, smart home automation system will reach to a variety of enhancements that could lead all the above systems to achieve greater accuracy in sensing and detection.

3. REFERENCES:

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