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SMART HOME AUTOMATION USING IOT

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ABSTRACT

Nowadays, home automation is playing a crucial role in our life. Home Automation let the user to control the home from his or her computer and assign actions that should happen depending on time or other sensor readings such as light, temperature or sound from any device in the Home Automation network. It reduces the human intervention thereby using the energy efficiently and saves the time. The aim of this technology is to automate the appliance around us which enables us to control them and helps in warning us during critical situations. It facilitates the communication between many real world objects by collaborating with various technologies.

IoT involves enhancing network to proficiently collect and analyze the data from various sensors and actuators then sends the data to the mobile phone or a personal computer over a wireless connection. Building IoT has progressed essentially in the last couple of years since it has created a new era in the world of information and communication technologies. Security is an important issue nowadays, as the possibilities of intrusion are increasing day by day. Safety from intrusion, theft, fire and leakage of flammable gas are the most important requirements of home security system for the people.

Keywords: IOT,Ardunio,Wifi.

I. INTRODUCTION

The Internet of Things (IoT) is network of physical objects devices, vehicles, buildings and other items embedded with electronics software sensors, and network connectivity that enables these objects to collect and exchange data. The IoT allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit; when IoT is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical systems, which also encompasses technologies such as smart environment grids, smart homes, intelligent transportation and smart cities. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing Internet infrastructure. Experts estimate that the IoT will consist of almost 50 billion objects by 2020IoT devices can be 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) in home automation.

Internet of things (IoT) Nowadays most common use devices such as mobile, sensor, watch, TV connect to the Internet using a wireless technology. IoT makes them capable of share, communicate, and transfer data through the Internet whether posting to a server or reading data from a server. There aremany devices that support IoT like Arduino, Raspberry PI[3], and other micro-electronic devices. IoT capable of using the Internet and wireless technology to produce an environment of a remote

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II. ADVANTAGES OF HOME AUTOMATION SYSTEM

In recent years, wireless systems like Wi-Fi have become more and more common in home networking. Also in home and building automation systems, the use of wireless technologies gives several advantages that could not be achieved using a wired network only.

1) Reduced installation costs: First and foremost, installation costs are significantly reduced since no cabling is necessary. Wired solutions require cabling, where material as well as the professional laying of cables (e.g. into walls) is expensive.
2) System scalability and easy extension: Deploying a wireless network is especially advantageous when, due to new or changed requirements, extension of the network is necessary. In contrast to wired installations, in which cabling extension is tedious. This makes wireless installations a seminal investment.
3) Aesthetical benefits: Apart from covering a larger area, this attribute helps to full aesthetical requirements as well. Examples include representative budings with all-glass architecture and historical budings where design or conservatory reasons do not allow laying of cables.
4) Integration of mobe devices: With wireless networks, associating mobe devices such as PDAs and Smartphones with the automation system becomes possible everywhere and at any time, as a device's exact physical location is no longer crucial for a connection (as long as the device is in reach of the network).

For all these reasons, wireless technology is not only an attractive choice in renovation and refurbishment, but also for new installations.

III. RELATED WORK

Earlier researchers have developed and used several technologies in different-2 display devices because each display has its own feature and specifications.

Here we used some technologies or display device just to get the required result:

Hardware

Hardware components for IOT Home Automation are: IR Sensors, LCD display, Power Supply, Capacitors, Wifi.

The operating system (for example, a computer, security system, a telephone or electricity). The device being operated (for example, a light or furnace) The interface, or link, between the user and the device. An interface can be a button, a keypad, a motion sensor and so on. For example, a thermostat equipped with a computer chip can be controlled by an interface such as a push button, which sends a signal to the furnace to adjust the temperature for different times of the day and night.

IV. CONCLUSION AND FUTURE SCOPE

Home Automation is undeniably a resource which can make a home environment automated. People can control their electrical devices via these Home Automation devices and set up the controlling actions in the computer. We think this product have high potential for marketing in the future. At the moment the components are a bit to high to be able to produce these devices for a interesting price.

The Home Automation could be developed further by making it more stable and put more effort on the visual design of the product. We could reduce the size of the product by replacing the power supply module and Arduino microcontroller with much smaller pieces. All the devices could be equipped with IR receiver to control the electrical devices at home that support the IR communication. More sophisticated actions and scenarios can be created with this. IR commands enable larger variety for controlling electrical devices that only the power outlet. A lot of improvements could be done in the computer program as well. It should be more

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customizable for an end user and it should have some password protection for security reasons. It would be also nice to make it web-based so that users can control their home remotely.

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