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Design Universal Remote

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Abstract— The Internet of Things (IoT) is the future of networking that allows connection between physical and virtual institutions, or residential). Today, the home automation area offers timer control and remote control for embedded systems and electronic devices such as light, heating, entertainment systems, ventilation, appliances, etc., to improve comfort, convenience, security, and energy efficiency. However, the element of autonomous behavior is lacking, this is where the smart homes come into the picture. The categorization is done by the controlling mechanism throughout the world in highly unified and increasingly useful ways. The use of IoT devices is to control and monitor the electrical, mechanical, and electromechanical appliances used in many applications (e.g., industrial, offices, remote controls. These devices crave the user to be within the premises in order to operate the types of equipment. Applications such as Bluetooth, Radio, and other devices are coming in the vicinity of the spectrum. In this project, the system uses android smartphones as an interface for remotely controlling electronic appliances for home automation. That connects the sensors and all electronic home appliances to automate control through a remote controller.

Keywords— Esp8266, Light automation, PIR sensor, relay, Ultrasonic sensor

I. INTRODUCTION

Internet of Things (IoT) is a network or connection of physical objects or "things" embedded with electronics, software, and sensors, making these objects capable of collection of data. The basic idea of smart homes using a universal remote controller is to broaden the working of a normal home automation system in such a way that the home appliances can be accessed pervasively. The universal remote controller is anticipated to enable the user to access the automation system remotely which is made possible through an android application to interact with the devices through only basic internet access.

- To control all remote controlled appliances using one remote
- To develop a cheaper as well as a suitable system
- To decode and encode signals properly.
- To make our life easier

As more and more consumer electronics and home appliances are used, the size of them is becoming large; power consumption in the home area tends to grow. Moreover, unusable power consumption occurs in the absence of human beings in the public and private sectors.

Using the IoT, automation in switching the home or office lighting system, the consumption of electricity can be comprehensively reduced which will in turn save the money of the owner. Now people are looking forward to automation in their daily life. The people are trying to reduce human efforts.

By using the suggested system wastage of electricity can be reduced as electrical appliances will be automatically turned ON or OFF based on the presence of the human being with the help of the PIR sensor, while departure no need to turn off the appliances or while arriving in your cabin no need to turn on the electrical appliances. This is the main enhancement of the projected system.

Further, we explain how the paperwork actually works. The circuit diagram and the flowchart of the projects are also explained. The future scope of the project and the updation of the project are also mentioned.

Ultrasonic sensors and buzzers are common parameters to alert the person sitting inside the lab. In this IOT-based paper, we are going to alert the person through the buzzer who's sitting inside the lab.

It consists of two sections – Ultrasonic senses the distance between person and door. The second section is the buzzer which alerts the person sitting inside the lab that if anyone enters through the door the will buzz and will alert the person.

In the existing system, all data processing is done manually. When there are a lot of issues such as retrieval and storage of the information and keeping track of them becomes a tedious task.

II. RELATED WORK

Most commercially available home automation systems are all-in-one solutions that require that all controllable appliances are from the same company, or must be approved

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as compatible with said company's system.

Moreover, these systems normally come with a proprietary, dedicated device that acts as the control center. To control the system from multiple locations, additional control devices must be purchased. These complex systems usually need to be integrated when the building is constructed and must be planned in advance. They are also difficult to upgrade or replace once installed. The overall investment adds up considerably and is financially infeasible in most cases. These drawbacks hinder the popularity of such systems.

Prototyping design of Electronic End Devices for Smart home appliances is one of the existed systems. In this system, end-devices prototyping is designed for supporting several main electronic-based applications which are commonly found in a home. The motivation of this work is to propose end –devices prototyping designs that are (1) to represent several main electronic functions in a common Home, (2) Able to support our existing and efficient smart home platform, and (3) Able to provide smart functions on existing appliances without any major changes and modifications. Home appliances are controlled by Bluetooth and Wi-Fi. Smart home switches to connect and disconnect by using IoT are some other relatives of existing systems.

III. PROPOSED SYSTEM

The System is better from a scalability and flexibility point of view than the commercially available home automation systems. The User may use the same technology to log in to the server web-based application.

Smart homes have appliances lighting or any electronic devices that can be controlled remotely by the owner often via a mobile application. An android phone is a smartphone running on Google's open-source Android operating systems. A smartphone equipped with infrared (IR) capabilities is easier to realize the functions of PPRC. Otherwise, some IR USB dongles can provide support for android operating systems. And several open-source universals plug and play (UPnP) libraries are useful to help us to reduce the development time. Finally, for the implementation of the PPCB, the design of the small and narrow hole is a trick for the IR mechanism. The comprehensive system architecture and its primary components.

The basic methodology of this system is explained below: a. The system is an IoT-based universal remote controller which takes inputs from the android application of the user and operates the specific electronic home appliance from any part of the globe. Inputs are the selection of home appliances, then control from the universal remote-control system, and finally, the functionality required for that appliance. egg switch ON/Office. This system makes changes in the current state of the selected device according to availability and selected functionality. e.g., Devices like tube lights have only the functionality to switch ON/OFF.

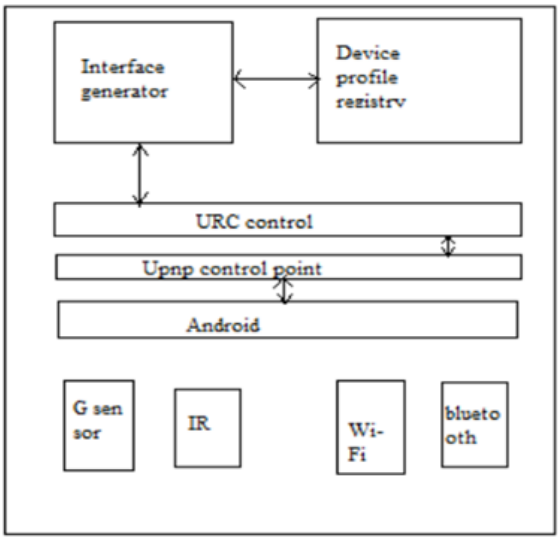

Figure 1: Proposed System

Figure 1 shows the overall proposed diagram. There are several PV module performance recorders used for the PV monitoring system, which are connected wirelessly to the centralized monitoring PC. Each PV module performance recorder, it consists of a current sensor, a PIC microcontroller, an LCD, and a Zigbee module. The monitoring PC act as a server which consists of a GUI, and the data acquisition device. The data collected on the PV module performance recorder will be transferred wirelessly using the Zigbee module that has been placed on both the recorder and host PC.

Hardware Requirements

- ESP 8266
- LED
- IR-transmitter led
- wires

IV. EXPERIMENTATION PROCESS AND RESULT

From the proposed system we can conclude that an approach is taken to control the room lights using various devices. As nowadays an enormous amount of energy is wasted in daily life. With the help of this system, the energy wastage can be preserved and can contribute to a large amount of power-saving. The total effective cost of the system is very less. Also, the program was run and the built device was successful in alerting. The results that have been obtained from the above setup can be seen in the blink app that has been shown below.

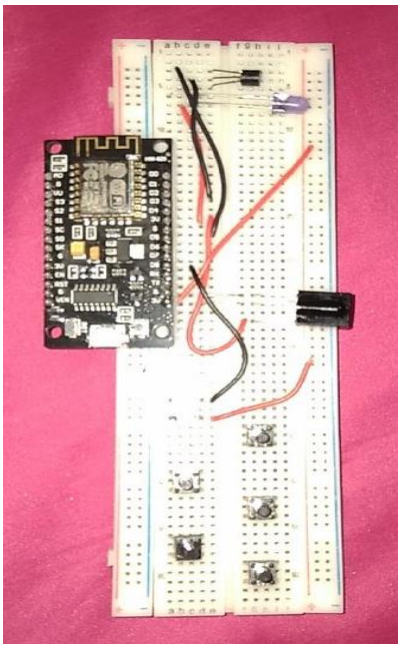

Figure 2: Experimental Setup

CONCLUSION

Finally, we concluded that our method works effectively on smart home appliances by using android applications controlled through Bluetooth and Wi-Fi technologies. The implementation of the proposed control system is currently limited to IR sensors. More state-dependent devices must be identified. Therefore, control devices with a more precise pointing mechanism, and support an auto-discovery mechanism of state dependencies are two possible directions for future research.

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