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Smart Home Appliances Control using IOT

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ABSTRACT: The suggested system aims to create smart home appliances control using IOT that may be utilized to manage household equipment using mobile applications connected to the internet. People carry their smartphones around all the time these days, so it makes sense to use applications to control home appliances. These applications allow us to operate electrical household equipment with a single click and send these commands over the internet. We have a propensity to use the Raspberry Pi 2 in this project. We'll use this to control electrical fans, interior and outdoor lighting, and other home equipment using a mobile device.Relays linked to the appliances are managed by the Raspberry Pi 2. Unlike the majority of commercially available smart home devices, the proposed system is expandable so that one server can control several hardware interface modules as long as a computer network is present. The system is compatible with home automation gadgets like security and power management components.

KEYWORDS: Raspberry Pi, Smart Home Appliance Control, IOT

I. INTRODUCTION

The Internet of things (IoT) is the network of everyday objects – physical things embedded with electronics, software, sensors and connectivity enabling data exchange. IOT improves efficiency, accuracy, economic benefits along with reduced manpower. Temperature has an impact on all activities surrounding us. A precise determination of temperature is a vital factor in countless industries and different fields of science. The benefits of home automation typically fall into a few categories, including savings, safety, convenience, and control. Additionally, some consumers purchase home automation for comfort and peace of mind. The sensor utilized here is, LDR, MQ8 sensor.

Smart Home Appliances Control can be described as introduction of technology within the home environment to provide convenience, comfort, security and energy efficiency to its occupants. The electrical and electronic appliances such as fan, lights, outdoor lights, fire alarm, kitchen timer, etc. can be controlled using various control techniques. Raspberry- pi is low cost small and portable size of computer board. It can be used to plug in to computer monitor or television, keyboard, mouse, etc.

II. RELATED WORK

Ravi Wankhade, [1] had proposed a Home Automation system that employs the integration of multi touch mobile devices, cloud networking, wireless communication, and power-line communication to provide the user with remote control of various lights and appliances within their home. Internet by using Bluetooth wireless technology to provide a link from the appliance to the Internet and Wireless Application Protocol (WAP) to provide a data link between the Internet and a mobile phone. However, technical details relating to the controller are not revealed.

Mohamed Hisham Moubarak [2]proposed a home gateway system for interconnecting home network consisting of IEEE 1394 AV network and X10 power line home automation network with Internet. This provided remote access functions from Internet for digital AV appliances like Digital Video Camera,Digital VCR connected to IEEE 1394 network and home appliances like TV desk lamp, electric fan connected to X10 controller. Internet of Things (IoT) is a concept that imagines all objects around us as part of internet. IoT covers a very wide range of objects and includes variety of objects like smart phones, tablets, digital cameras and sensors. When all these devices are connected to one another, they enable more and more smart services and processes that support our everyday needs, environment and health.Applications that interact with devices like sensors and digital cameras have special requirements for massive amounts of storage to store big data, huge computation power to enable the real time processing of the data into information. In this paper we present a Home Automation system (HAS) using Raspberry Pi3.

Mohammad Kasim [3] proposed an approach to design and implement a control and monitor system for the smart house. Smart house system consists of many systems that controlled by LabVIEW software as the main controlling system in this paper. Also, the smart house system was supported by the remotecontrol system as a sub-controlling

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system. Internet of Things (IoT) is a concept that imagines all objects around us as part of internet. IoT covers a very wide range of objects and includes variety of objects like smart phones, tablets, digital cameras and sensors. When all these devices are connected to one another, they enable more and more smart services and processes that support our everyday needs, environment and health. Cloud based platforms help to connect to the things around us so that we can access anything at any time and any place in a user friendly manner using customized portals and built-in applications.In this paper we present a Home Automation system (HAS) using Arduino Uno.

III. PROPOSED METHOD

Life is becoming easier and less demanding today as automation innovation advances in all fields. Modern technology called "home automation" transforms your house to carry out various sets of tasks automatically. Nowadays, automatic frameworks are preferred than manual ones. It's no surprise that home automation is already a hot topic in India, especially as the number of second-generation home owners rises and their demands for amenities go beyond just electricity, water, and shelter. Comfort and convenience are the earliest and most evident benefits of smart homes since more technology can handle more tasks (such as lighting, temperature control, and other tasks), freeing up the resident to carry out other duties.

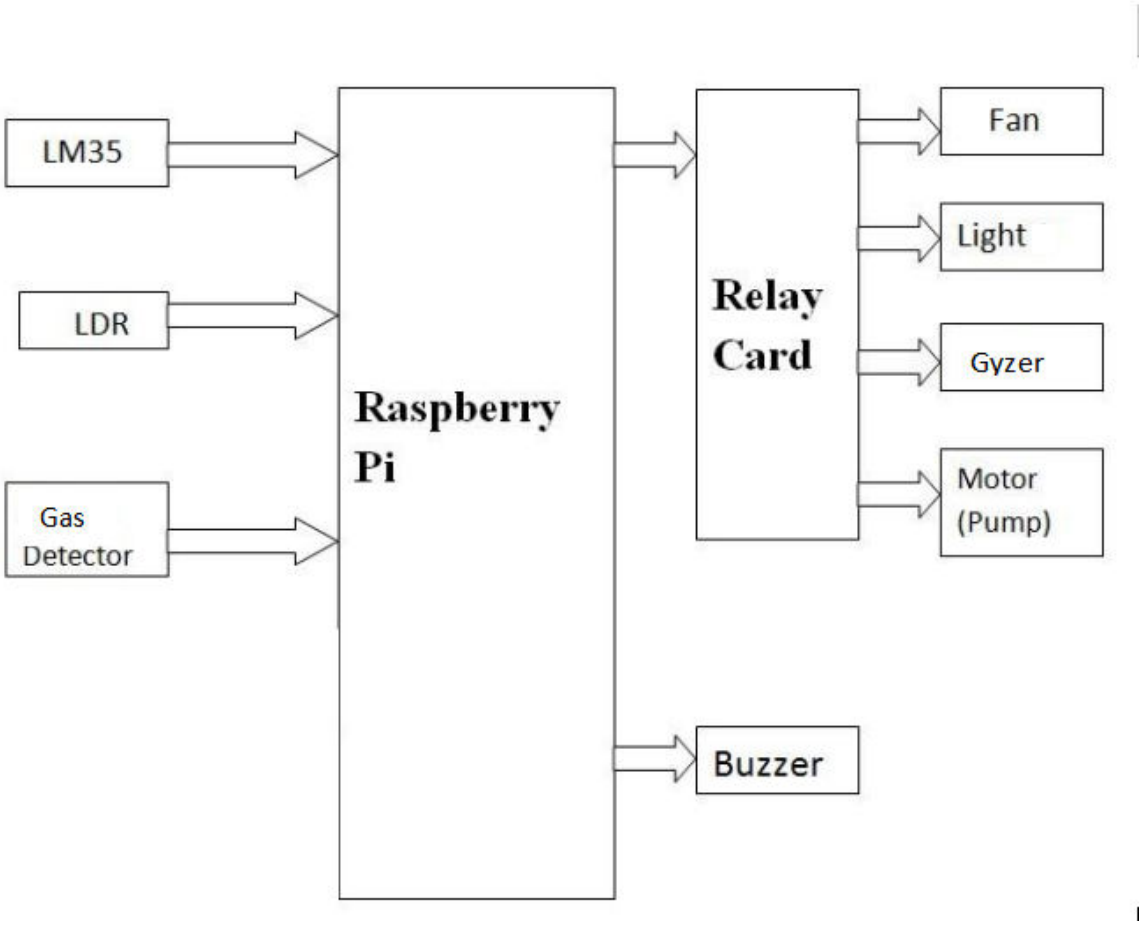

Figure 1: System Block Diagram

Homes filled with connected products are loaded with possibilities to make our lives easier, more convenient, and more comfortable. There is no shortage of possibilities for smart home IoT devices as home automation seems to be the wave of the future. The Figure 1 is a block diagram that consists of Raspberry Pi, Light Dependant Resister, Smoke Detector, Water pump, Buzzer, Relay, and external appliances.To demonstrate the practicability and efficiency of the system, devices such as relays, power plug, raspberry pi and sensor have been integrated with the proposed intelligent office system. The system uses Raspberry Pi module .It is supposed to be a credit-card-sized single board computer technologically advanced by the Raspberry Pi Foundation. It is developed with the aim of providing the guidelines for basic computer science.

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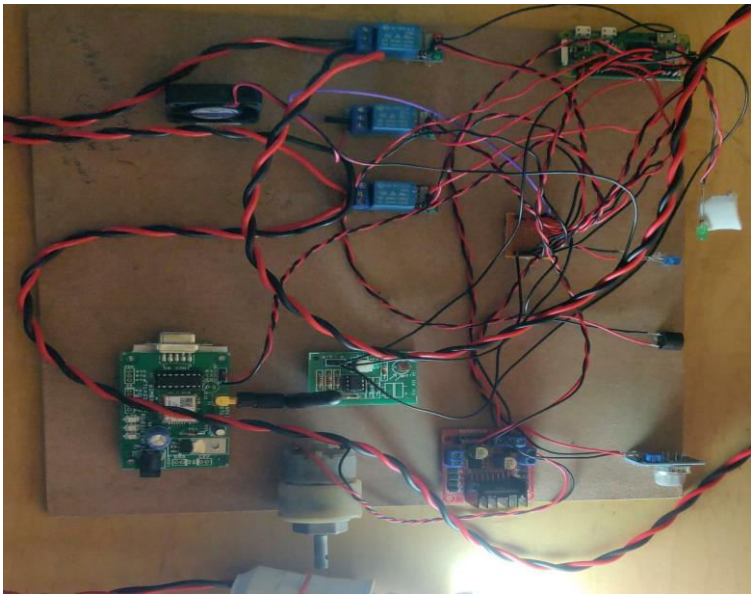

Figure 2: An Overview of System Implementation

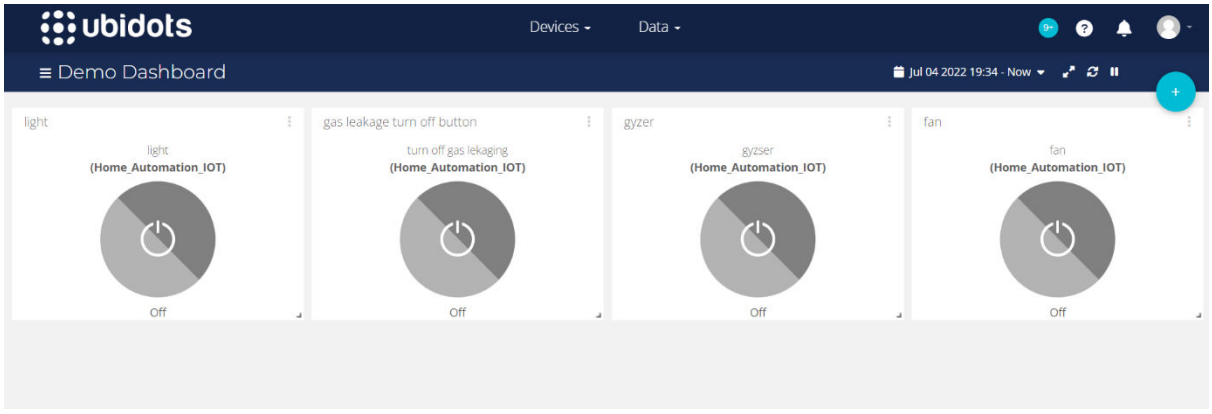

Figure 3: An Android Application

IV. CONCLUSION AND FUTURE WORK

Using an internet source and a Raspberry Pi, the work for IoT-based home appliance control was successfully finished. It is a low-cost, scalable, and easy-to-implement home automation system. Human life is made simple and comfortable by it. You can control your household appliances from anywhere in the world.Using this systems framework, the system can be expanded to include various other options which could include home security feature like capturing the photo of a person moving around the house and storing it onto the cloud. This will reduce the data storage than using the CCTV camera which will record all the time and stores it.

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