

TOUCHLESS HOME AUTOMATION USING AUGMENTED REALITY

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Abstract: As the human life is heading towards busy schedule it becomes necessary to automate our home appliances. Human error is something that cannot be completely erased. With the busy schedule in hand there is defiantly a possibility of missing something that may be trivial to us but can result into a catastrophe. For these reasons Our Project home automation can increase efficiency, security and reliability. AR which has recently evolved for the automation of various electrical appliances by popping virtual objects into real world.

Keywords: Augmented Reality, Automation, Microcontroller, web interface.

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1. INTRODUCTION

With the advent of technology, there is a wide increase in the use of smart phones, laptops and people are getting more and more dependent on these devices for doing their work. People can control and handle different appliances through their devices using different techniques. Augmented reality (AR) is one of the recent technologies evolved for automation of the electrical appliances. This technology gives a virtual view of the devices generating a real environment.

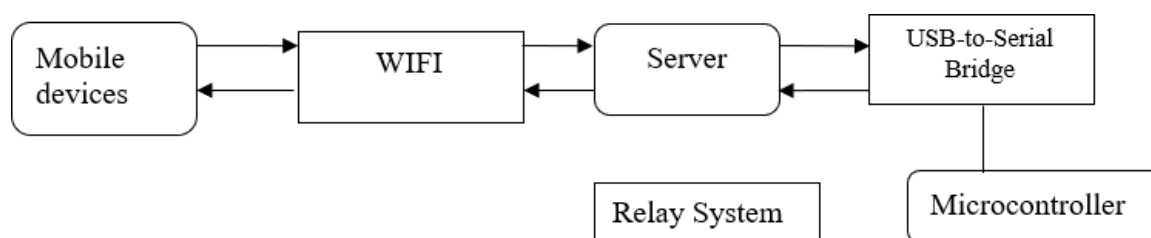
Augmented Reality brings virtual objects into the real world where we live. Augmented reality is used in many areas such as navigation in real-world environments, advertising, military, emergency services, art, games, architecture, sightseeing, education, entertainment, commerce, information visualization, translation and so on. What has really brought Augmented Reality to life in the recent years is that AR applications are now available on many smart devices and are easy to use. In principle, AR can be implemented on any computer and handheld device that use video-see through technology that allows to see through the display to view both the real world and superimposed computer-generated objects.

With advancement of Automation technology, life is getting simpler and easier in all aspects. In today's world Automatic systems are being preferred over manual system. Internet has played a major role in the field of automation. Internet of things is a growing network for controlling the home appliances such as lights, fans, Television, etc. Home Automation system using IoT is a system that uses computers or mobile devices to control basic home functions and features automatically through internet from anywhere around the world. An automated home is sometimes called a smart home. Many a times people forget to switch off their electrical appliances when they leave their home. But due to the use of smart phones to control the home appliances this problem has been reduced.

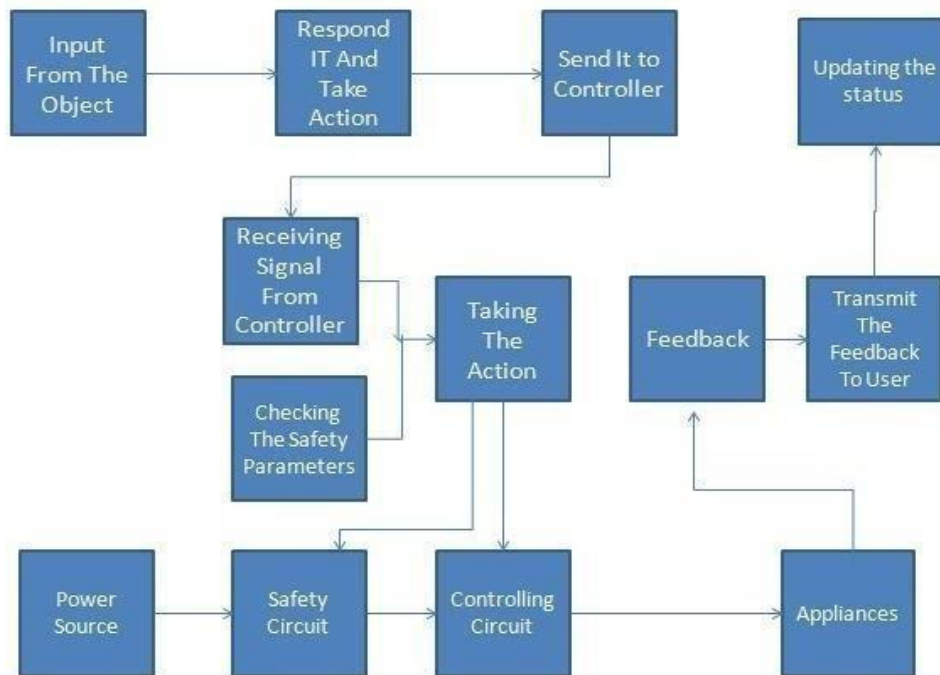
2. DESIGN

ESP32 provides interface between the electrical equipments and mobile devices, it plays a crucial role as a backend processing unit. ESP32 is connected to the relays that will operate our electrical equipments, also it has an IR transmitter attached that has the same frequency as the operating remote for that particular electrical device and can be used for the increment and decrement of a particular function (controlling of temperature in Air conditioners).

ESP32 also acts as the web host which will control the GPIO pins of our ESP32. Relay is used to switch power the power socket and is controlled via ESP32. The appliances connected to the socket can be controlled from the user interface and the status can also be monitored.



Block Diagram:

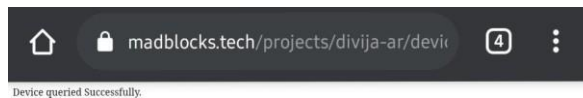


3. ANALYSIS

This Home Automation using AR will make the home smart and healthier living. This acts as central control system in commercial buildings and home. This can be implemented using affordable electronic and software technology making it economically, technically and operationally feasible.

4. RESULTS

The ON/OFF buttons which are connected to the devices are the virtual objects that we are created. When we turned on/off the devices, here the API shows a message like **“Device queried successfully”**. If the device has not been turned on it shows **“the device has not queried successfully”**. When it shows the message the relay which are connected to the particular device will be turned on.



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5 CONCLUSIONS

In conclusion, augmented reality is a futuristic step towards the digital age. With the advancement of the Internet of Things (IOT), the blend of both technologies could impact our lives on a daily basis. AR has amazing applications that can very well allow us to live our lives more productively, more safely, and more informatively.

This paper has presented an initial effort at analyzing current AR various technologies used as well as game genres. The trend graphs show that modern AR games tend to make use of cheap and highly accessible equipment found on popular mobile consumer phones and laptops.

They also show many avenues which are lacking in both research and commercial development. Hence researchers and game companies can make use of the review in this paper to better focus their energies in terms of AR games this paper can be seen as simply a starting point at trying to consolidating an AR games database.

Here we conclude that our project using AR controls the home appliances by creating a touchless remote which is virtual. With the use of smart phone devices, users will be able to switch on/off the electrical appliance through network or internet. This system will mainly help the elder people to control appliances giving them a real-world experience.

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