PROBLEM STATEMENT

In today's fast-paced world, many households struggle with managing various home devices and systems efficiently. Traditional manual control of home appliances often leads to inconvenience and security concerns. The lack of a centralized, user-friendly interface for controlling multiple devices creates frustration for users who wish to enhance their living experience.

To address these issues, the goal is to develop a comprehensive home automation system that integrates seamlessly with Google Assistant using IoT. This system will allow users to control lighting, heating, security systems, and other smart appliances through voice commands, thereby providing convenience, energy efficiency, and improved home security.

INTRODUCTION

Home automation system can be referred as a system which replaces human interactions by controls. Devices uses internet to connect to each other and operate further. Internet of Thing is a dust that turns the automated home into the smart home. Internet of thing allows object to be controlled and sensed. Home automation is used for connecting various electrical devices in our home or office. These automation systems are designed or manufactured according to need of customer. Using home automation we can control devices remotely i.e. we can control lights, A.C, room temperature etc. Home automation systems are used for power saving. Home automation system requires computers which are large as well as heavy to carry around.

LITERATURE SURVEY

A thorough analysis of related literature review was carried out on the design and implementation of a home automation using google assistant in this paper.

PAPER-1

TITLE:" Home Automation Using Google Assistant ",Vol 32 Issue 1, (2023).

AUTHORS: Akshata Kamble, A. O. Mulani.

DESCRIPTION: This report presents the features to be possessed by an ideal system for home automation with remote access. An ideal system should be available from all over the world to a user and in real time. A internet network is identified as a candidate for this. Only the Internet can ensure that access can be made available at all times. This will give rise to a standard access method for the home appliances using the Internet protocol. The user interface should be a web application that has an associated mobile application. So that people of all kinds can access the system. Such a system should also have the feature of being easy to install. Only then can automated homes become commercially viable. There should be a lot of thought put into the design of the user interface for these apps. Plug and play capabilities will be an added bonus for the system.

PAPER-2

TITLE:"Google Assistant Controlled Home Automation", Vol.05 Issue 05, (2018).

AUTHORS: Manish Prakash Gupta.

DESCRIPTION: The aim of this paper was to propose a cost effective voice controlled (Google Assistant) home automation controlling general appliances found in one's home. The approach discussed in the paper was successful as Google Assistant Controlled Home Automation design was successfully implemented. This system is highly reliable and efficient for the aged people and differently abled person on a wheel chair who cannot reach the switch for the switching ON/OFF the device and are dependent on others.

PAPER-3

TITLE:"Intelligent Home Automation Using Google Assistant",Vol.10 Issue 03, (2022).

AUTHORS: Miss. Sanjana Nardelwar, Mr. Saket Junghare, Mr. Aditya Dhawale, Miss. Nayan Gokhale, Prof. Mohammad Hassan, Dr. Neetu Gyanchandani.

DESCRIPTION: The aim of this paper was to propose a used to control appliances in the home. The Node MCU combined with the ESP8266 was used as the main processing unit that collects data from the detector, processes it and also uploads it. By considering the below features, we've developed and tested the prototype. We've achieved the development of smart home by using Internet of Effects technologies. From trial, it was plant that we can manage to make a low cost, flexible and energy effective smart home for a better and greener future. For unborn work we'd like to add further control units which can make our smart home more intelligent which can be stationed virtually in real time situation. IoT systems use our own aural and language models to cover, execute and control conditioning through voice processing.

OBJECTIVES

- Automate the control of various home appliances (like lights, fans, AC, etc.) using smart switches or relays connected to a central control system.
- Implement voice control functionality by integrating the Google Assistant to receive and interpret user commands.
- Enhance user convenience by allowing hands-free operation of devices, making it easier for users to interact with their homes.

METHODOLOGY

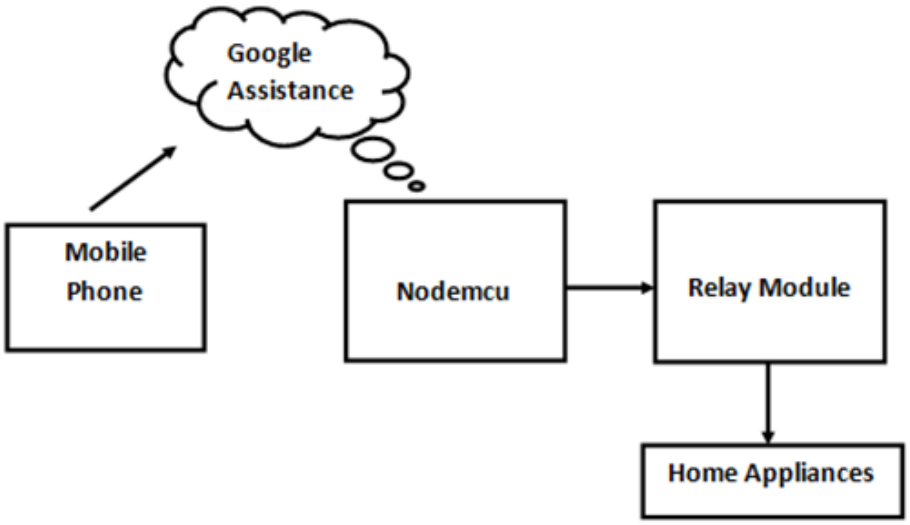

Fig. 1 : Block diagram of Home Automation using Google assistance

With the discussed Flow chart as fig.1 given above shows the block structure and inner workings as the voice commands are specified from the AI assistant or from the program software in the web are named through for operation and it decides the data/info from the apps or web to put in front with the those written as same in the source codes, the behaviors is to carry out a distinct task which can be as simple as turning on and off, a correct input to the mains will give the desired results as an output which is seen visually. An incorrect input will be seen and be rejected and be subjected to another cycle of waiting for command from the input devices. An anticipated functionality of the project is realized through to the application by programming it to be split-off it into two stages. Centralized controlled board (Arduino) code is selected to gather all the basic and needed information/data/commands and maybe standard push button description. Then comes the code for application, that describes the operation structure every time and, in the realm of being in a distantly designed mode, which commands the actuators operations never without the controller acting every time in sequence with the main microcontroller.

APPLICATIONS

- Manage smart home appliances like refrigerators, ovens, washing machines, or coffee makers with voice commands.
- Manage smart doorbells and locks, enabling remote access and voice control for locking/unlocking doors or viewing visitors.
- Monitor and control energy usage by managing smart plugs and outlets, allowing appliances to be turned off remotely or according to a schedule.
- Use voice commands to assist elderly or disabled individuals with tasks like controlling appliances, turning on lights, or locking doors, enhancing accessibility and independence.
- Create customized routines for controlling multiple devices simultaneously based on a single command.
- Control garden irrigation and watering systems based on weather data and soil moisture levels.