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HOME AUTOMATION SYSTEM

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Abstract: The aim of this paper is to develop home automation system based on IOT using Bluetooth based microcontroller. As scope of technology is widening every day, we are making our tech advance in mobile, robotics, Machine Learning, then why an exception for our home. Today's houses are gradually transferring from ordinary/human's input-based appliances to smart/IOT enabled appliances to be controlled remotely. At Present, existing home automation systems use technology that is limited to only that device. So, in a nutshell, we are making our devices IOT enabled not our homes. As far as this paper is concerned, NodeMCU (ESP8266) microcontroller along with Relays is used to control electrical switches remotely from the server which is built on java. User can control switches using a Web Application after authenticating

Keywords: bluetooth module for connecting device, NodeMCU(ESP8266) ,Relay board for connecting wires ,

INTRODUCTION

IOT or internet of things is an upcoming technology that allows us to control hardware devices through the internet .Here we propose to use IOT in order to control home appliances, thus automating modern homes through the internet. This system uses 4-loads to demonstrate as house Appliances Controlling. Our user friendly interface allows a user to easily control these home appliances through the internet Worldwide. For this system we use an NodeMCU (Node Microcontroller Unit).This microcontroller is interfaced with a Relay modem to get user commands over the internet. Relays are used to switch loads. The entire system is powered by a 5V Adaptor/Charger (Micro- type). After receiving user commands over the internet, NodeMCU processes these instructions to operate these loads accordingly and display the system status on an Smart Phone Display. Thus this system allows for efficient home automation over the internet.

In this we have used the Blynk Community Application dor controlling the Home Appliance all over the world. The Method used for controlling are Swiping the figures on Smartphone or Voice Control with Google assistant and After that we have used the latest technique that is IFTTT Platform & Web- Hooks For triggering our circuits. It will trigger the circuit as it gets input command from the Google assistant.

LITERATURE SURVEY

1) BLUETOOTH BASED HOME AUTOMATION SYSTEM USING CELL PHONES:

- In Bluetooth based home automation system the home appliances are connected to the Arduino BT board at input output ports using relay.
- The program of Arduino BT board is based on high level interactive C language of microcontrollers; the connection is made via Bluetooth.
- The password protection is provided so only authorized user is allowed to access the appliances.
- The Bluetooth connection is established between Arduino BT board and phone for wireless communication. In this system the python script is used and it can
install on any of the Symbian OS environment, it is portable.
- One circuit is designed and implemented for receiving the feedback from the phone, which indicate the status of the device.

2) GSM BASED HOME AUTOMATION SYSTEM USING CELL PHONES:

- Because of the mobile phone and GSM technology, the GSM based home automation is lure to research.
- The SMS based home automation, GPRS based home automation and dual tone multi frequency (DTMF) based home automation, these options we considered

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mainly for communication in GSM.

- The home sensors and devices interact with the home network and communicates through GSM and SIM (subscriber identity module).
- The system use transducer which convert machine function into electrical signals which goes into microcontroller.
- The sensors of system convert the physical qualities like sound, temperature and humidity into some other quantity like voltage.
- The microcontroller analysis all signal and convert them into command to understand by GSM module.
- Select appropriate communication method among SMS, GPRS and DTFC based on the command which received GSM module.

3) WI-FI BASED HOME AUTOMATION SYSTEM USING CELL PHONES:

- Wi-Fi based home automation system mainly consist three modules, the server, the hardware interface module, and the software package.
- The figure shows the system model layout. Wi-Fi technology is used by server, and hardware Interface module to communicate with each other.
- The same technology uses to login to the server web based application. remote users can access server web based application through the internet using

compatible web browser. Software of the latest home automation system is split to server application software, and Microcontroller (Arduino) firmware.

- The Arduino software, built using C language, using IDE comes with the

microcontroller itself. Arduino software is culpable for gathering events from

connected sensors, then applies action to actuators and pre- programmed in the server.

- Another job is to report the and record the history in the server DB. The server

application software package for the proposed home automation system, is a web

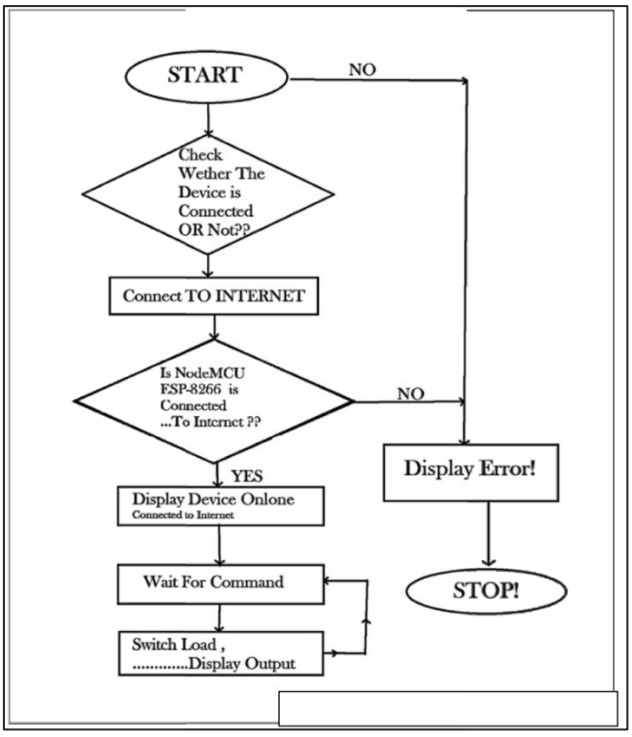
based application built using asp.net.

- The server application software can be accessed from internal network or from internet if the server has real IP on the internet using any internet navigator

supports asp.net technology.

- Server application software is culpable of; maintain the whole home automation system, setup, and configuration.

METHODOLOGY



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HARDWARE SPECIFICATION

1) Laptop

The Device used to provide the Commands, Control the Appliances, Switch the Loads over the Internet (Internet of Things) Through Voice Commants Or Swiping on Screen/Display

2) NodeMCU Processing –

The Heart Of Home Automation, Used to Process the Information/Commands/Instruction provided by the User or Owner, Its function is to Process the data & Pass the signal to the Relay and Switch the loads as per given Input.

3) Applications/Appliances-

The Load Can be of any type which is the output of the circuit. The Output oif relay drives the appliances. i.e switch the Loads.

1) Fan
2) Led Bulbs

SOFTWARE SPECIFICATION

PROGRAMMING SOFTWARE ARUINO

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code,a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to theArduino and Genuino hardware to upload programs and communicate with them.

ADVANTAGES / DISADVANTAGES

ADVANTAGES

1. Savings:

Smart thermostats and smart light bulbs save energy, cutting utility costs over time. Some home automation technologies monitor water usage, too, helping to prevent exorbitant wate r bills. Certain devices even offer rebates.

2. Convenience:

Because home automation technology performs rote tasks automatically, end users experience great convenience. Lots of smart gadgets are compatible with one another, and you can set different triggers between devices to automate regular home processes. For instance, you could set your smart locks to turn on your smart lighting when you unlock the front door.

3. Control:

Consumers also choose smart home devices to better control functions within the home. With home automation technology, you can know what's happening inside your home at all times.

4. Comfort:

Some people use smart technology to record shows or to play music throughout the home. Connected devices can also help create a comfortable atmosphere—they provide intelligent and adaptive lighting, sound, and temperature, which can all help create an inviting environment.

5. Peace of Mind:

Finally, many consumers invest in home automation technology for peace of mind. A new mom or dad can check on their little one thanks to smart cameras and other technologies. Or, if you can't remember whether you closed the garage after you left, you can verify remotely with an app.

DISADVANTAGES

1.Security Issues: As with all computing devices, security will become a greater issue as more people use smart home devices. ...
2 .Cost: Extremely expensive: ...
3. Greater acceptance:

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APPLICATION

1. Lighting control.
2. HVAC.
3. Lawn/Gardening management.
4. Smart Home Appliances.
5. Improved Home safety and security.
6. Home air quality and water quality monitoring.
7. Natural Language-based voice assistants.
8. Better Infotainment delivery.

CONCLUSION

While wearing down this endeavour we have grabbed a lot of finding out about various modules being used in this errand. We are glad we can Built this Project as a part in this endeavour and set up new musings. We believe the assignment completes as needed and the data grabbed in the midst of this period will be used in our future corporate life. Additionally, we might want to include that home computerization is the fate of places of new world. Home automation is a resource which can make home environment Automated. People can control their electrical devices via. Smartphone These home automation devices and set-up controlling action through mobile. In future these products may have high potential for marketing.

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