HOME CONTROLLING ON THE WAY

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Abstract: IoT is mainly used to provide communication between objects. These objects are living and nonliving thingss. Many smart devices can communicate through IoT. Security to our home is one of the major issue faced by our system. IoT home automation is a low-cost and flexible solution to the smart home. The home automation technology provides security, safety and comfortable life at home. The major use of home automation system is to provide monitoring and control of home appliances. The home automation technology also provide a door permission system between visitor and home owner. The home owner can ON/OFF the home appliances from anywhere and anytime. This system can be implemented in different ways such as internet, electrical switch and graphical user interface (GUI). The home owner can control the home appliances and provide door authentication from anywhere. Using this home automation system the user can reduce the wastage of electrical power by monitoring the home appliances periodically

Index Terms **– Automation System, IoT, GUI**

I. INTRODUCTION

Security to our home is one of the major issue faced by our society. The IoT home automation system provide a fare and comfortable solution for it. Nowadays every person in our society expect a secure life in their home. The home automation system provide a secure life. The system can monitor and control the home appliances and the surroundings of the home from anywhere and anytime. The idea in this home automation system is that control the home appliances using a ' touch '.Here the home appliances are controlled by a smart phone using Wi-Fi.[5].Basically the home automation system has three sub systems. The first system is a monitoring system. The monitoring system is mainly used to monitor or watch the home appliances from anywhere. The second system is a controlling system. Using the controlling system, the user or home member can control the home appliances from anywhere and anytime. The third system is a fast permission system. The fast permission system is mainly used to provide door authentication [1].That is, if a visitor is come to the home then the home owner can provide door authentication (That is door open/close) to the guest.

The basic technology used in this home automation system is Wi-Fi. Using Wi-Fi the user can monitor and control the home appliances. The user control the home appliances sending some predefined messages to home automation centre. The basically used predefined messages are ON/OFF. The home appliances like light, fan etc. can be ON/OFF using Wi-Fi. In this system a smart phone always show the current status of the home appliances. That is whether the home appliances are ON/OFF 2].The system also shows the number of persons in the home. The user can always watch his family members. If a stranger is enter into the home then the user can see it and then he can take necessary actions [4].

II. PROPOSED SYSTEM

The IoT home automation system is a combination of three systems. The basic systems are monitoring system, controlling system and fast permission system. Using the monitoring system the user can watch his home, home appliances and the surroundings of the home. If anything happened to the home unusual then the user can take necessary actions to control and protect the home. Using this smart monitoring system the user can always check the current status of the home appliances that is whether the home appliances are ON/OFF [1].

Fig 2.1 Home Page

The controlling system is mainly used to control the home appliances. By using smart control system the user can ON/OFF the home appliances as per his need. The smart permission system is mainly used to provide door authentication. That is the user can open and close the door of his house from anywhere.

The technology used in this home automation system is internet of things because it provide data sharing. So the user can control the home appliances either by a laptop or mobile. The major components in this home automation system is raspberry pi2 model B and a laptop.

Fig 2.2 Raspberry pi2 model

The raspberry pi2 model B is mainly used for multi-purpose activities. It is mainly runs at 900MHz.The raspberry pi2 model can be used as a mini computer with keyboard, mouse, camera and speaker. The raspberry pi2 model B has 40 general purpose input output pins (GPIO) for input and output. The raspberry pi2 model provide communication to laptop and the laptop to user. The raspberry pi2 model is set up by software [3].

The laptop is mainly used as local server. The local server control the whole system. The images of the visitor and the house members are processed by laptop. The user can watch his house, family member security guard from anywhere in 24 hours using the smart phone. If the user or any person are came to the home, then the camera take the photo and then it is processed by the laptop. If it is a valid visitor then the user can open the door either physically or by using smart phone. The system also shows the number of persons in the home and also their faces. If a stranger is enter into the house without permission then the user can recognize his face from anywhere and he can take necessary actions. The laptop is mainly used to process the images and also helps to show number of persons in the home.

The home automation system provides ON/OFF status of the connected devices like light and fan. The devices connected to this system can be controlled either by the smart phone or electric switch. The raspberry pi processor is used to process the input-output signal of the appliances using general purpose input output pins (GPIO) of raspberry pi. The fast permission system consist of controllers and hardware permission system .If a visitor is come then the camera in the raspberry pi take the images of the visitor then the system saves the images of the visitor with date and time. Then the system send a real time video to the user. The video contain the visitor and his activities. Then the user can give “open” message to the system to open the door or he can give “wait” message. Then is wait for next message from the user without open the door. These messages are predefined. Similarly ON message is used to switch on the home appliances and OFF messages are used to switch off the home appliances of home automation system

III.RESULT AND DISCUSSION

The major advantage of home automation system is that they can save the electric power used in the home. If the user is going to somewhere from home and the electric devices are ON the he can OFF this home appliances from anywhere. The user can watch the home and home appliances from anywhere. Interruption of persons other than the personals in the home can be easily identified using sensors. Presence of personals in the home can be identified.

The user in this home automation system must register with their username and password. Only registered members can monitor and control the home and home appliances. So a stranger cannot access the data and he can't control our home and home appliances. The Raspberry Pi2 model B sends and receives the data from the remote user. The user can control and check the status of home appliances. The appliances are controlled using GUI.

The homeowner can interact with the visitor without the coming to the door. Home page contents auto-size themselves according to the smartphone screen. Easier understandability and accessibility of home appliances is provided using Internet. The home automation user can remotely watch the family and security personnel of smart home anytime.

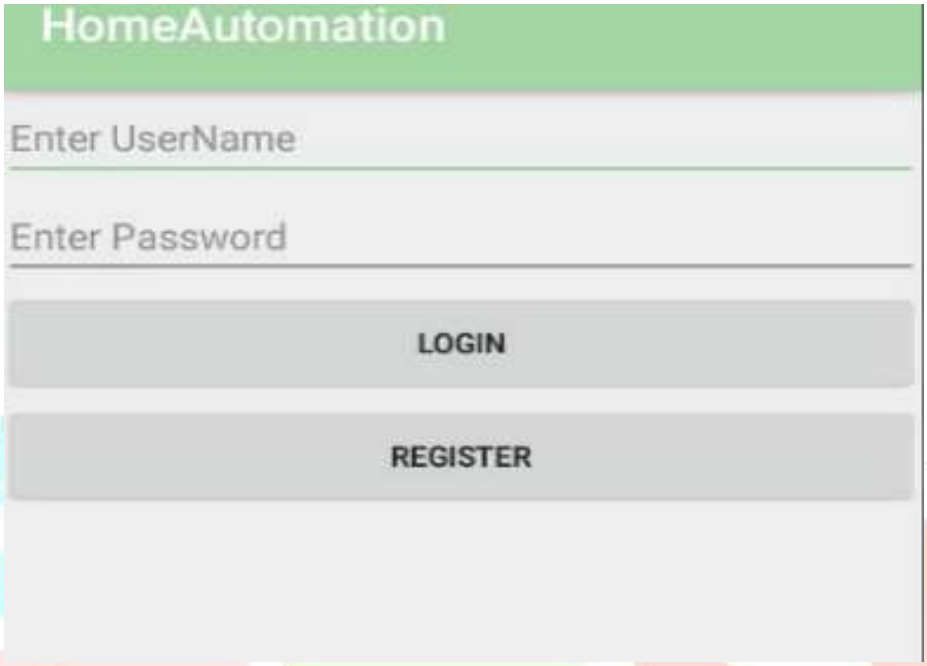

Fig 3.1: Login page of the system

If a registered user is login to the home automation system then he can watch his home and surroundings from anywhere and anytime. Then he can watch the current status of the home appliances connected to the system, number of members in the house and he can also watch his family members anytime and from anywhere.

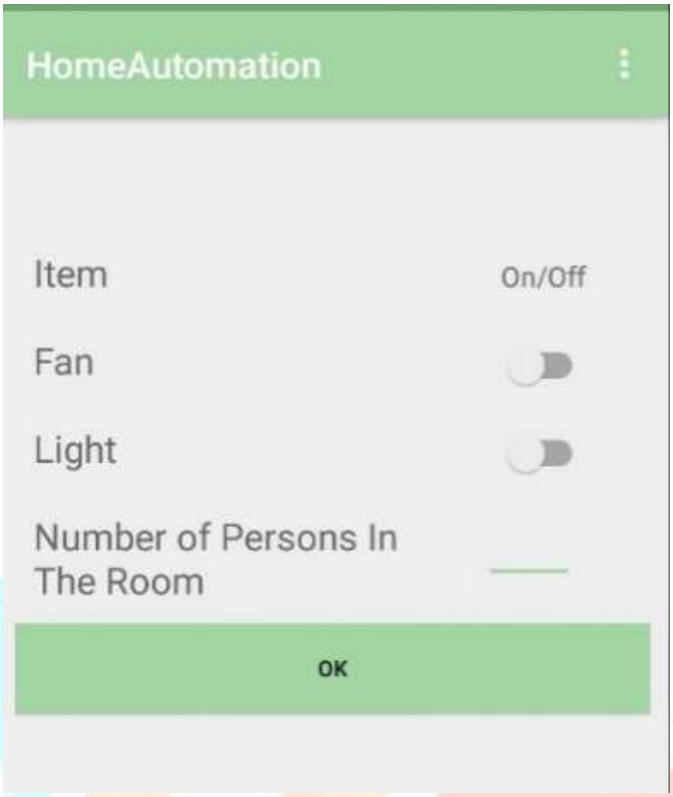

Fig 3.2: Status of the home appliances

The user watch the current status of the devices connected to the system. He can ON/OFF the devices as per his need. Then the system also shows the number of persons in the home. If a stranger is enter to the home without permission then the user can take necessary actions. Using this home automation system the user can watch his home and family members anytime and anywhere. Using this home automation system the user can reduce the total current or he can save the power used in the house. The unwanted electric devices can be OFF anytime. Graphical User Interface makes easy monitoring and control of appliances for the user.

IV. CONCLUSION

The home automation system provide a low cost and flexible system to control the home appliances from anywhere and anytime. Using this system the home appliances like television, fan can be controlled that is the devices can be ON/OFF from anywhere. This system contain a monitoring system to watch the home and home appliances. Then the system contain a controlling system to control the home appliances and a fast permission system to provide door authentication. The user can watch his house, surroundings and home appliances in 24 hours from anywhere. If a stranger is enter into the home without permission of the family member then the user can watch it and then he can take necessary action.

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