Android Based Home Automation System

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Abstract— Now a day’s Home Automation plays a very important role in modern days by using this system people can save time and also money by decreasing human hard work. The main objective of home automation is to help physically disable and old people by controlling all the home appliances from their convenient place and give alert in their critical situation. This system controls the home appliances like light, fan, bulb, automatic door lock etc. by entering the selected key for corresponding load from Android phone and also shows reading of water tank level, room temperature, and distance measurement on the android phone. If any device in the home is on and no one is available in their home at that time we can switched off device from any place through GSM system. Hence this project provides Luxurious experience, assure energy saving and security of home.

Key words: Home Automation, Arduino, Android Phone, Controller

I. INTRODUCTION

Home automation is a field within building automation, specializing in the specific automation requirements of private homes. This technique is used for the comfort and security of its residents. Home automation is the modern technology that control certain electrical and electronic system in a building. These includes controlling of light, fan, tube, bulb, door etc. This project contains an android mobile, GSM module several home appliances, Bluetooth. Home appliances connect with the android mobile via a wireless device. Some practical implementation like reading of water tank level, distance measurement and room temperature shows on android smart phone. There are countless devices that controls by using home automation system.

II. WORKING OF PROPOSED SYSTEM

In Home Automation System Microcontroller is heart of system. It is interfaced with Sensors and Home appliances. Here in this project we interface sensors like Temperature sensor, Proximity IR sensor, Passive Infrared motion sensor, Ultrasonic sensor and Home appliances like Fan, Lamp, RGB Led, LCD display. For wireless communication between microcontroller and Android Phone use Bluetooth. It is a field as communication channel between remote phone and microcontroller. Using android application user can give commands by button touchpad or by voice commands. In android application that commands are encoded by ASCII values that send to microcontroller. Microcontroller receive that and decode it then compare with predefined program and gives respective output. It also gives notification on TFT LCD display and android application about status of all home appliances. Sensor interfaced with controller gives its measurement on android application and touch screen display. Also in this project we have used GSM module to switch off all the devices from any location outside the home so user can easily access all home appliances from different places with comfort.

In extreme installations, sensors can detect not only the presence of a person but know who that person is and perhaps blink appropriate lighting and achieve door security. Other automated tasks may include setting the air conditioning to an energy saving setting when the house is unoccupied, and restoring the normal setting when an occupant is about to return. Using PIR, IR Proximity sensor this can be done. Some practical implementations of home automation are, when a level sensor detects Threshold points of level measurement, then level LED of the house will blink to give indication of level of tank.

III. SYSTEM BLOCK DIAGRAM

Fig. 1: System Block Diagram

IV. RESULTS OBTAINED

When the process is started following result will observed
- Touch Screen Display Started and LED of microcontroller will blinking.
- LED of Bluetooth Module will blink.
- Touch screen indicates values of Sensors.
- When android phone is connected with controller then it shows notification on phone and can control all home appliances.

Fig. 2: Android Application
we can give command through button or goggle speech which is contained in given android application.

VI. CONCLUSION

The home automation system has been successfully control all devices from a wireless mobile with android application and also with GSM module. This project has very portability and wide compatibility because by connecting Bluetooth with different mobile people can control all home appliances. In this project sensors like proximity, temperature, Level plays important role to enhance automation level. This project will not only provide convenience to the common man but will be a beneficial for the old and disabled people. This project can shut down all devices from any location by using GSM module.

REFERENCES