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SMART HOME CONTROLLING SYSTEM BASED ON ZIGBEE AND GPRS TECHNOLOGY

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ABSTRACT: In this paper, based on ZigBee technology and GPRS a wireless remote and detecting system for smart home is developed which realized the detecting of the home equipment and the state of home environment. The system consists of the host control centre and several sub function modules and software. The host control system includes MC39i module, CC2430 module and STC12C5410 MCU control center. The several sub function modules consists of the data acquisition module and CC2430 modules. There was a need to automate the home so that user can take the advantage of the technology advancement in such a way a person can send message to home control center when he forget turning of the AC instead of returning home. In addition home security is the major reason.

Keywords: *Microcontroller, Zigbee, Gprs.*

I. INTRODUCTION

As the science and technology has advanced, many applications developed in each and every field.In the communication field the technologies used such as GSM, Bluetooth, WI-FI so on. The wireless communication technology is existing in wide range. The smart home application is also one of the important applications which led to luxury home environment and more to the pursuit of security which made the people living life style more comfort and improved the people living standard. Many applications has been developed and many smart home applications have come into existence which led to luxurious home environment. Wireless remote systems for smart home application is developed to analysis and detect the status of home equipments based on ZIGBEE and GPRS technology.The aim of the smart home application is to discover a valuable wireless system that will provide controlling of the home equipments remotely whenever the home host is absence of home, the host remotely manipulates the home equipments by the smart home application which is the main aim of this system. Based on Zigbee technology and GPRS a wireless remote and detecting system for smart home is developed which realized the detecting of home equipment and the state of the home environment. In this from section2 we will get the status of our home Zigbee will send it to the section1 in this section GPRS will update status of our home. Based on that by passing command from our mobile GPRS we will operate the home appliance by using GPRS and Zigbee technology

I. The Hardware System

Micro controller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

ARM7TDMI: ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

Liquid-crystal display (**LCD**) is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital

clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.

I. Design of Proposed Hardware System

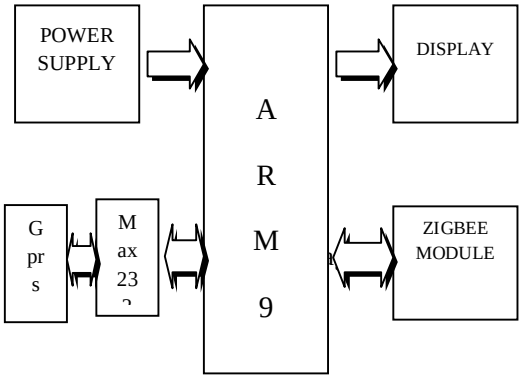

Fig.1.Block diagram

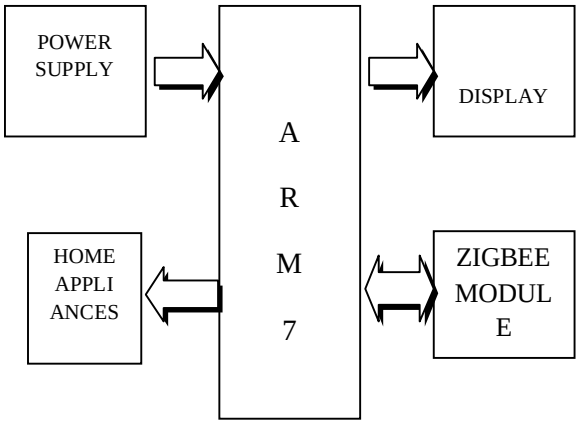

Fig.2.Block diagram (RECEIVER SECTION)

The host sends the text message via GPRS mobile phone to the master slave or host control center the work of the home appliance and appropriate control of them. The control center detect an external interrupt, when an external interrupt occurs, the buzzer will automatically alarm, the control center to send text message to mobile phone. ZigBee module is responsible for receiving and sending data between the host control and sub function system. Data transmission is due to communication between the ZigBee and ZigBee modules. GPRS module is responsible for receiving the control system issued the warning signals and sent over the control command to the host center

IV.Board Hardware Resources Features

Zigbee

Zigbee modules feature a UART interface, which allows any microcontroller or microprocessor to immediately use the services of the Zigbee protocol. All a Zigbee hardware designer has to do in this ase is ensure that the host's serial port logic levels are compatible with the XBee's 2.8- to 3.4-V logic levels. The logic level conversion can be performed using either a standard RS-232 IC or logic level translators such as the 74LVTH125 when the host is directly connected to the XBee UART. The below table gives the pin description of transceiver. Data is presented to the X-Bee module through its DIN pin, and it must be in the asynchronous serial format, which consists of a start bit, 8 data bits, and a stop bit. Because the input data goes directly into the input of a UART within the X-Bee module, no bit inversions are necessary within the asynchronous serial data stream. All of the required timing and parity checking is automatically taken care of by the X-Bee's UART

Gprs Module:

The system uses the GSM / GPRS module which is produced by Siemens Company, GPRSmodule is designed for GSM communication module business, which provides GPRS service. It is compatible with GSMphase2/2, support for dual band (GSM900, 1800), ETSI compliant GSM0707 and GSM0705, which includes the GSM baseband processor, power supply ASIC, RF, and Flash memory and other parts. With this module we can implement SMS and GPRS services, to complete long-distance communication system needs. Interface module ZIF40 connected with the main control center, in which GPRS module is connected with a user's system through serial port, and does not need Level conversion.

V. CONCLUSION

This design is based on ZigBee and GPRS technology. The main purpose of this paper is to control the home appliance remotely from anywhere. The host controls the home from anywhere through his mobile. Hosts sends an SMS through is mobile phone to the host control system at the particular device. The host control according to the condition given by the host control that particular device. The important aim of this project is to detect the person (or) any damage of the home equipment when host is absence of the home. Thus the title is the design of remote intelligent smart home system based on
ZigBee and GPRS technology.

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VII. BIOGRAPHIES

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