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Abstract

Home Appliances Control System Incorporating  
Wireless Communication and Power Line

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As the time goes by and with the renovation of technology, human beings have demands of higher living quality. In order to attain the goal of controlling home appliances, home automation system has been developed in several ways. The most common types of home networks today are Power line, RF (Radio Frequency), Phone Line, IR (INFRARED), USB (Universal Serial Bus) and Ethernet. Because of the restraint of the network bandwidth and funds, the transmission ability of communication device, and the scalable of traditional home appliances. It makes impact on the convenient and practicability of home automation system. Recent types of method that using the mobile phone to send SMS (Short Message Service) to the SMS module at home, which could send control command to control the home appliance network, but the user have to remember the code of the command and the appliance. On the purpose of making users have more convenient access to automation system and spend less money on using the system. In this paper, we will propose a type of automation system with the features of low cost and convenience. In general houses nowadays, there are power-lines already installed. In order to minimize the cost, we can have power lines as the main transmission medium in the home automation network. We will integrate mainly the power line media with mobile

phone or PDA (Personal Digital Assistant) to construct a whole control system. This home appliances automation control system gives you the opportunity to automate your household lights and appliances either standalone or remotely via Wi-Fi (Wireless Fidelity) or the GSM (Global System for Mobile communications) GPRS (General Packet Radio Service) connection. Remote Control application for the PDA or Mobile Phone let you have access of the Gateway PC (Personal Computer) server over a TCP/IP (Transmission Control Protocol/ Internet Protocol) connection. We use on line PDA or Mobile Phone to contact with the PC that controls all the appliances in the power line network for electric appliances at home. People can control their home any time and anywhere they want.

Comparing with other SMS mobile phone system, we use the mobile phone to send the control command to the home system gateway through GPRS instead of SMS, as the text of the control command is small than 1 KB, the charge of 1KB GPRS service is less than one message SMS service in Macao, Beside that, if you use the system in your apartment or office which afford fee Wi-Fi service, the lower cost will be acquired. To be more user friendly and handled in a more conveniently way, the interface of the users of the system also includes touch screen and the equipment of the remote control (PDA or Mobile Phone) are handy for user.

Now people pursue the goal of economic and efficiency, so the home automation remote control is necessary. Time is Money, our automation system place emphasis on the function of remote control; people can control their home any time and anywhere they want. It is very suitable for modern people who seize every minute and second, therefore there is a good development in the market of Macao. This system is an innovative product in Macao. Despite the fact that there have been some similar systems in mainland China or even in the world, they are in the primary stage of the development. Therefore this system has potential to develop.