

Home Automation System using DTMF

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Abstract— Now a day's mobile has become an area of our standard of living. Due to low value of mobile phones, that's why we are widely used for home automation. In this paper a remotely operated mobile controlled home appliances system is projected. It is a DTMF (Dual-Tone Multiple-Frequency) based system consist of two mobile phones, DTMF decoder and one microcontroller. One mobile is employed as remote which can find a way distance from home and another mobile is found at the house that act as a receiver. The DTMF signals send via the remote mobile as DTMF tone. This DTMF tone is received by the mobile phone installed at home. The received DTMF tone is then decoded by DTMF decoder IC. The output logic signals of the decoder used as an input to the microcontroller. The microcontroller is antecedently programmed to manage home appliances in line with output of the DTMF decoder.

Key words: Appliances, DTMF Decoder, Home-Automation, Microcontroller, Mobile Phone

I. INTRODUCTION

Automation could be a technique, method, or system of in operation or dominant a method by electronic devices with reducing human involvement to a minimum. The fundamental of building Associate in an automation system for Associate in Nursing workplace or house is increasing day-by-day with various advantages. Industrialist and researcher's area unit operating to create economical and affordability automatic systems to watch and management completely different machines like lights, fans, AC based on the requirement. Automation makes not only an efficient but also an economical use of the electricity and water and reduces much of the wastage [1]. People use different types of communication in control applications to control home appliances, industrial appliances, and other type of automation. There are two types of communication i.e. generally use - one is wired and alternative one is wireless. In wireless communication we tend to transmits signal wirelessly, like using radio frequency (RF) and in wired communication in which we uses wires like copper wire. In this paper "DTMF based mostly Home Automation System" we tend to area unit aiming to management our home appliances wirelessly. To control any electrical appliances mistreatment movable while not employing a microcontroller. This circuit makes use of DTMF (Dual Tone Multi Frequency) technique. Dual-tone multiple-frequency signal (DTMF) is Associate in an in-band telecommunication signal system mistreatment the voice waveband over phone lines between phone instrumentation and alternative communications devices and change centers. DTMF system also known as touch-tone system. The touch-tone system employing a phone input device bit by bit replaced the utilization of rotary dial and has become the business customary for phone line and mobile service. Other multi-frequency systems area unit used for internal signal at

intervals the phone network. As register signaling is used in DTMF phones here tones rather than make/break pulse are used for dialing and each dialed digit is uniquely represented by a pair of sine waves tones. These tones (one from low group and another from high group) are sent to the exchange when a digit is dialed by pushing the key, these tone lies within the speech band of three hundred to 3400 cycle per second and area unit chosen thus on minimize the likelihood of any valid frequency try existing in traditional speech at the same time. A valid DTMF signal is that the total of 2 tones, one from a lower cluster (697-940 Hz) and therefore the alternative from the next cluster (1209-1663 Hz). The DTMF signal contains just one element from every of the high and low cluster. This significantly simplifies decoding because the composite DTMF signal may be separated with band pass filters into single frequency component each of which may be handled individually. The underlying principle chiefly depends upon the flexibility of DTMF ICs to come up with DTMF reminiscent of range variety} or code within the number pad and to observe identical number or code from its corresponding DTMF decoder [2]. DTMF is acronym for Dual Tone Multi Frequency. When you create necessitate client care, they will ask you to press 1, 2 or any other number. When you press variety from your mobile, one particular action is happening. All this is because of DTMF. When a button is ironed in your mobile input device, it will generate a tone of two frequencies. These tones are called row and column frequencies. Generally, row frequencies area unit low frequencies and column frequencies area unit high frequencies. These frequencies for DTMF area unit chosen in such how that they don't have harmonic relation with the others, so that they will not produce same tones. The column frequencies area unit slightly louder than the row frequencies to make amends for the high-frequency reel off of voice system. The application of this project is to change on and off home appliances by a cellular phone. It helps in effective management of home appliances and will increase power potency. It increases appliances lifetime and also power efficiency. DTMF tones area unit chiefly use in terrestrial stations for turning on and movement off remote transmitter. It is mainly use in telephone stations for detection of called and dialed numbers. It additionally helps USA to cut back wattage wastage.

II. METHODOLOGY

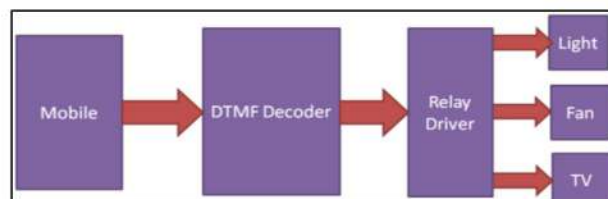


Fig. 1: Block Diagram of Home Automation System Using DTMF decoder.