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CELL PHONE BASED DTMF ROOM PARAMETER AND CONTROL

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Abstract: Controlling devices using switches are common. From a few decades controlling devices using remote control switches like infrared remote control switch, wireless remote control switches, light activated switches are becoming popular. But these technologies have their own limitations. Laser beams are harmful to mankind. Some technologies like IR remote control are used for short distance applications. In such case if we have system which does not require any radiations or which is not harmful, long remote control switch!! Yes here is the solution. Here I am introducing such a system which does not require any radiations, any laser beam which has no limitation of range, I mean it can be used from any distance from meters to thousand kilometers using a simple telephone line or mobile phone. Here I am using a telephone as a media, which serves main part of this system. By using home phone as a local phone and another phone - either landline or mobile phone as a remote phone we are controlling devices.

***Keywords*- DTMF DECODER, Power supply, Microcontroller, Mobile phone**

1. Introduction:

The main objective of this project is to control the home appliances by a mobile phone using a unique number entering through the keypad of the phone with the help of microcontroller. There are two types of communication i.e. generally use - one is wired and other one is wireless. In wireless communication we 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 Home Automation System" we are going to control our home appliances wirelessly. To control any electrical appliances using mobile phone without using a microcontroller. This circuit makes use of DTMF (Dual Tone Multi Frequency) technique. Dual-tone multiple-frequency signaling (DTMF) is an in-band telecommunication signaling system using the voice frequency band over telephone lines between telephone equipment and other communications devices and switching centers. DTMF system also known as touch-tone system.

Figure 1 - *Design and Working*

The DTMF keypad is laid out in a 4×4 matrix, with each row representing a low frequency, and each column representing a high frequency. Pressing a single key (such as '1') will send a
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sinusoidal tone of superimposition of two frequencies (697 and 1209 hertz (Hz)). The original keypads had levers inside, so each button activated two contacts. The multiple tones are the reason for calling the system multi frequency. These tones are then decoded by the switching center to determine which key was pressed. Present-day uses of the A, B, C and D signals on telephone networks are few, and are exclusive to network control. For example, the A key is used on some networks to cycle through different carriers at will. The A, B, C and D tones are used in radio phone patch and repeater operations to allow, among other uses, control of the repeater while connected to an active phone line. The *, #, A, B, C and D keys are still widely used worldwide by amateur radio operators and commercial two-way radio systems for equipment control, repeater control, remote-base operations and some telephone communications systems. But nowadays in mobile handsets the A,B,C,D keys are not used usually.

2. Features

1.You can control up to 10 devices. It may be any electric or electronic appliances or devices with simple to heavy appliances. Each device is given a unique code.
2.It makes accurate switching, any false switching of device are not done.
3.There is no risk for false switching.
4.Your local phone (i.e., home phone or office phone) can be used for normal use by using a DPDT switch. So you need not use a separate telephone line for this device controlling.

5.To perform any operations through remote phone line, the user needs to dial to the local telephone (to which the interfacing circuit is connected) then the respective code of the device is dialed.

6.This circuit does not require any complex IC, so any one with little knowledge of electronics can construct this circuit, because it does not need any programmable IC's or programming.

7.This system detects the ringing signal from your exchange with the help of ring detector and automatically switches ON.

8.This device saves your money. This circuit switches OFF after a time of 60 seconds (you can change this switch ON-Time which is discussed in detail in coming section).

9. You can control devices from local telephone. It can also be controlled by PCO.

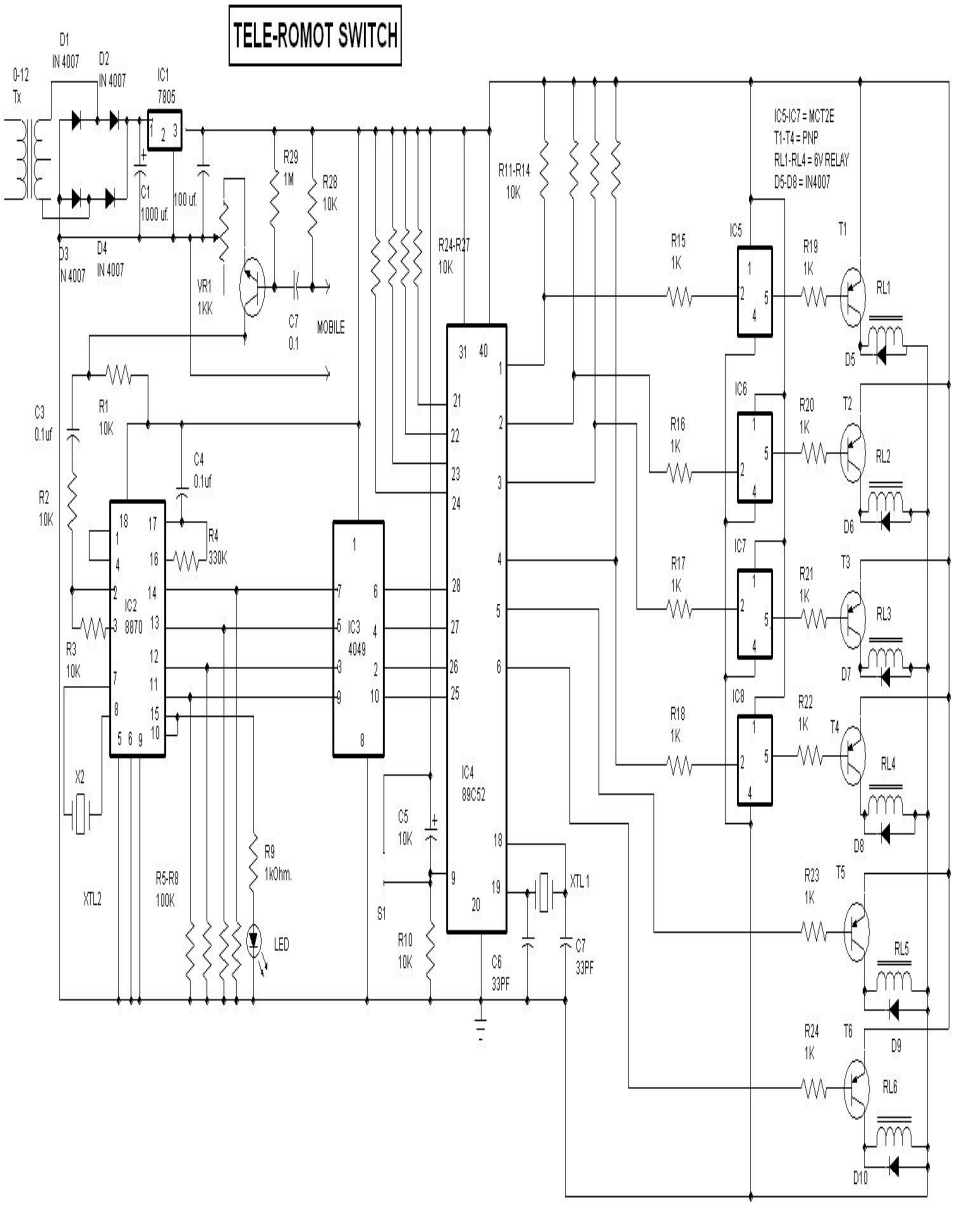

Fig: 2 - CIRCUIT DIAGRAM

3. CONCLUSION

It will encourage us to consider bringing Home Automation into our own lives. The plugs in devices make an easy entry point to working with the technology. The received tone is processed with the help of DTMF decoder. The DTMF decoder then transmits the signal to the microcontroller to operate the relay. It provides the advantage of robust control, working range as large as the coverage area of the service provider. In this way, we have developed this which is capable of receiving & decoding the commands and control signals from the distant areas and can work according to our instructions. This home appliances control or home automation project also uses the same DTMF decoder circuit section with little modifications to control home and office electrical appliances. Just connect your cell phone headset (headphone) jack to the mobile phone and then mobile will control electrical appliances and electrical equipment through the DTMF key pad of your cell phone.

4. References

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