

DESIGN AND DEVELOPED LOW POWER WIRELESS INFRARED REMOTE CONTROL SYSTEM

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Abstract—Automatic control of home appliances is highly in demand now-a-days. So the infrared (IR) remote control devices are used to operate in the most of modern household applications, such as television, set top box, home theatre and air conditioner etc. A single IR remote controller can't be used to manipulate the different kinds of home appliances; as they are not compatible which leads to the wastage of resources. This work proposes an application and design of IR remote system, which can control multiple devices, code and decode all of the infrared remote control protocol, and integrate with the transmission and receiver. A single IR remote control is developed for controlling several home appliances like television, DVD, SET top box, home theatre and Air conditioner. Infrared Remote Controls use infrared light and photo receptors Uses different light frequencies for different functions

Keywords— *IR Transmitter, IR Receiver.*

I. INTRODUCTION

Infrared (IR) transmitters and receivers are present in many different devices, though they are most commonly found in consumer electronics. The way this technology works is that one component flashes an infrared light in a particular pattern, which another component can pick up and translate into an instruction. These transmitters and receivers are found in remote controls and all different types of devices, such as televisions and DVD players. Peripheral devices that include this technology can also allow a computer to control various other consumer electronics. Since infrared remotes are limited to line of sight operation, some products can be used to extend the signals over a hardwired line or radio frequency (RF) transmissions. Most common consumer electronic remote controls use infrared light. They typically generate infrared using light emitting diodes (LEDs), and the main component of a receiver unit is usually a photodiode. A remote control flashes a pattern of invisible light, which is picked up and then turned into an instruction by the receiver module. The parts necessary to construct transmitter and receiver are typically inexpensive, but these systems are limited to line of sight operation.

II. BLOCK DIAGRAM

The work consists of blocks namely IR transmitter, IR receiver, frequency to voltage converter and comparator. IR pulses convert into electric pulses using IR sensor and given to frequency to voltage converter. Frequency of electric pulses change into voltage using this converter and its output will be fed to comparator. Comparator will give the decision about which load has to be driven depending on the pressed button from remote.

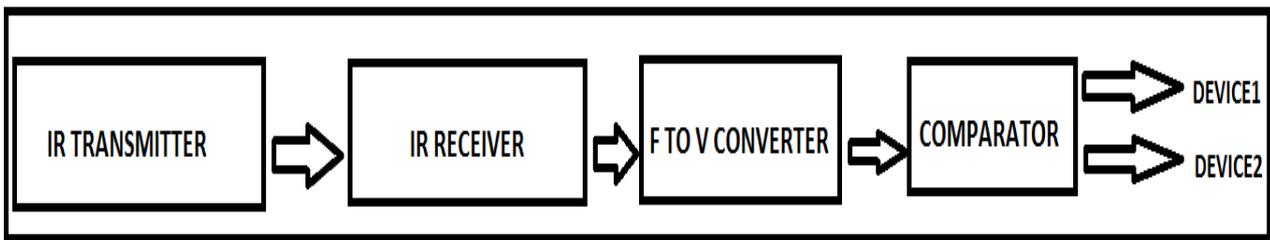


Fig 1. Block Diagram of IR Remote Control System

III. RESULT

Output of IR Transmitter

From the transmitter a square wave is generated. The picture of the signal in DSO is given below.

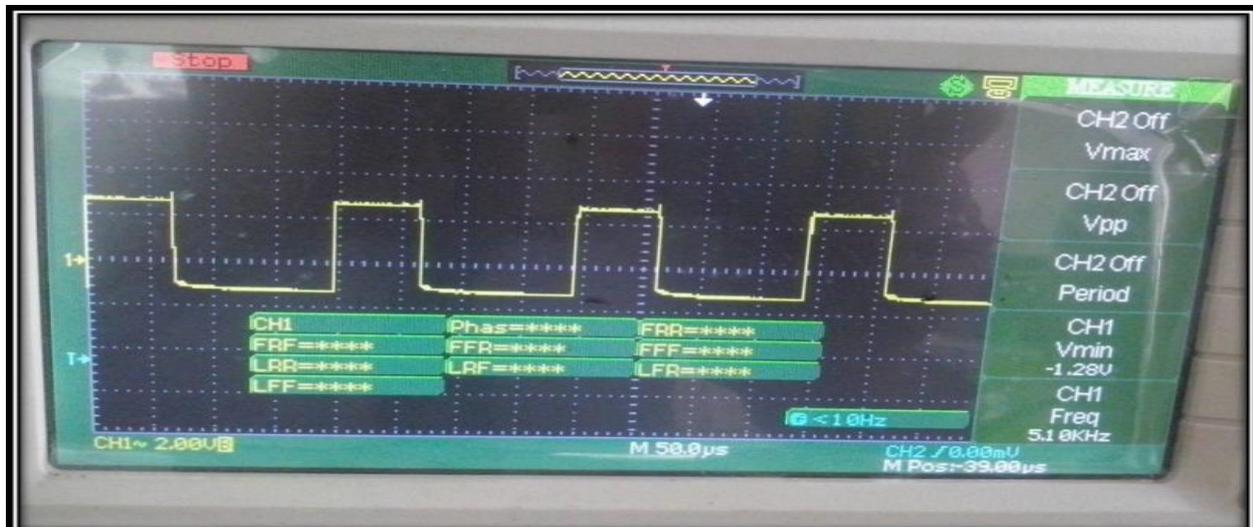


Fig 2. Result of IR Transmitter

Output of IR Receiver

From the receiver we got the same square wave of transmitter. The picture of the signal of both transmitter and receiver is given below in DSO is given below.

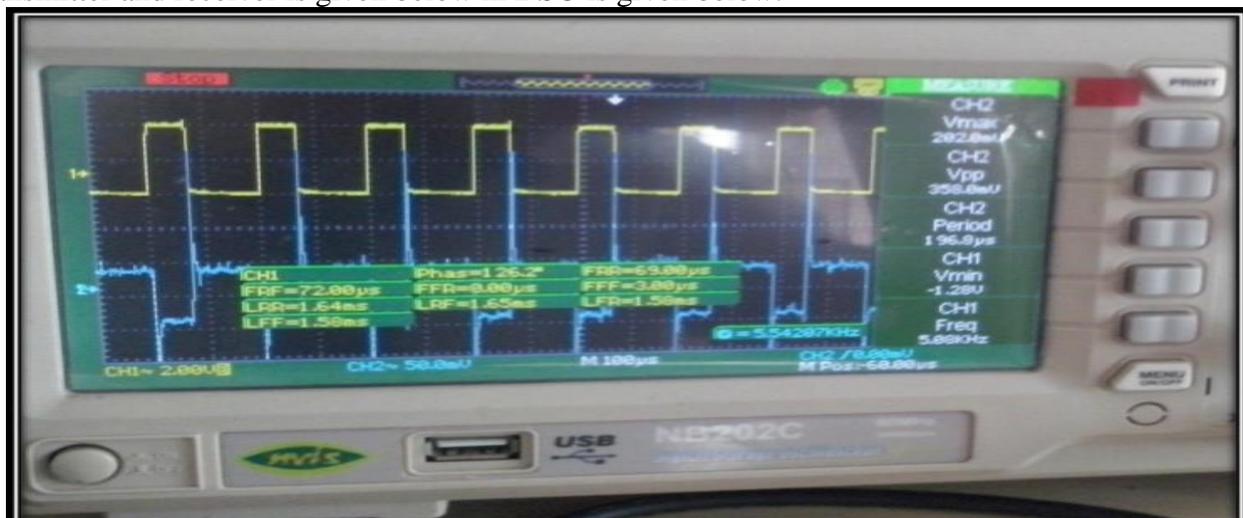


Fig 3. Result of IR Receiver

TABLE I

IR TRANSMITTER FREQUENCY	IR RECEIVER FREQUENCY
5.08 KHz	5.10 KHz

IV. CONCLUSION

Infrared Remote Control has had a big impact on today's world has freed us from wires and has made entertainment and industry faster and easier. This circuit is low cost and can be constructed easily. By using this circuit, we can control any house hold appliance with the help of remote. In this project, there are two parts – one is in transmitting section and the other is in receiving section. Receiving section will be in a stable position which is connected to any load and transmitter will act as a normal remote. Here we come across some great & powerful advantages of this project work, which is as follows-

- i)** *Simple circuitry*: no special or proprietary hardware is required, can be incorporated into the integrated circuit of a product
- ii)** *Higher security*: directionality of the beam helps ensure that data isn't leaked or spilled to nearby devices as it's transmitted Portable.

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