DIY Infrared Receiver for Your PC
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Introduction

Actually it's very strange why PC's aren't equipped with a standard remote control interface. A lot of motherboards are equipped with an IRDA port but this isn't compatible with the frequencies (38 kHz) used in regular remote controls. But WinLIRC comes to the rescue: with just a few components and a little bit of software we can make our own IR-receiver. We will be able to control every application on our pc from a distance up to 30 meters. And to make a receiver you need not be a graduate in electronics. Some basic soldering skills would suffice!!!

This is the beauty of it all: you can use almost any remote control. I am using the word "almost" because there might be problems with certain remotes, but I have tested a few and all of them were compatible with the receiver.

With this you can control media players like Winamp, Media Player Classic, MPlayer, BSPlayer,… the list is really a big one to be put here!!!

In this guide we'll be looking into the construction of receiver, receiver mounting, WinLIRC configuration and configuring Winamp for use with WinLIRC.

Requirements

Hardware (I got all these from Mercy Electronics, Tambaram, Chennai)

Item	Cost (Rs.)
TSOP 1738 IR receiver	20.00
78L05 voltage regulator	6.00
1n4148 Diode	
4700 ohm Resistor	
4,7 uF Capacitor	
Female DB9 connector with casing	5.00
WinLIRC supported remote control (Try using the remotes in your home else buy one)	90.00
Total	*121.00*

Software

WinLIRC 0.6.5	http://winlirc.sourceforge.net
Remote control plugin for Winamp 1.21	http://winamp.com/plugins

Making the receiver

Connect the components as shown in the circuit diagram (Fig 2). If you are not good at soldering get it done from local TV/audio service center. I've seen people who have done this for me for Rs.50. But since I've learned a bit of soldering I do it myself nowadays.
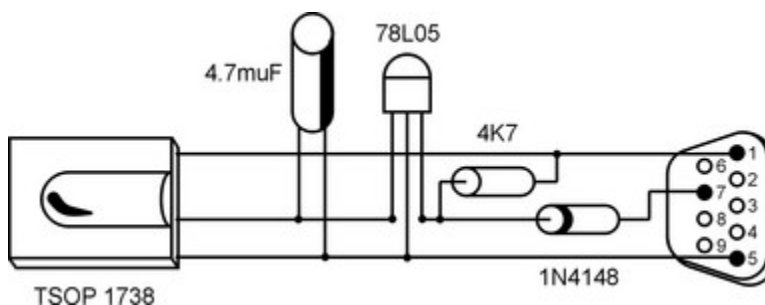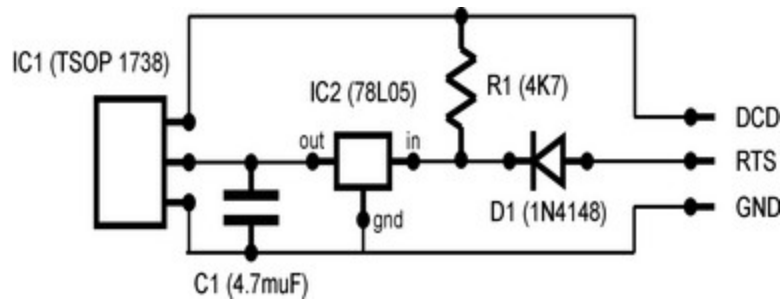

Fig 1 Receiver Schematic (from http://lnx.manoweb.com/lirc/)

Fig 2 Receiver Circuit Diagram (from http://lnx.manoweb.com/lirc/)

Connect the receiver to your COM Port. I've mounted my receiver in the front 3.5" face plate and used extension wires routed through a hole in PCI blanking plate and connected to my COM Port. For covering the hole made in the face plate I've used media from an old Floppy!!! There are a number of mounting ideas mentioned on the net, search for them and go along with the one that best suits you.
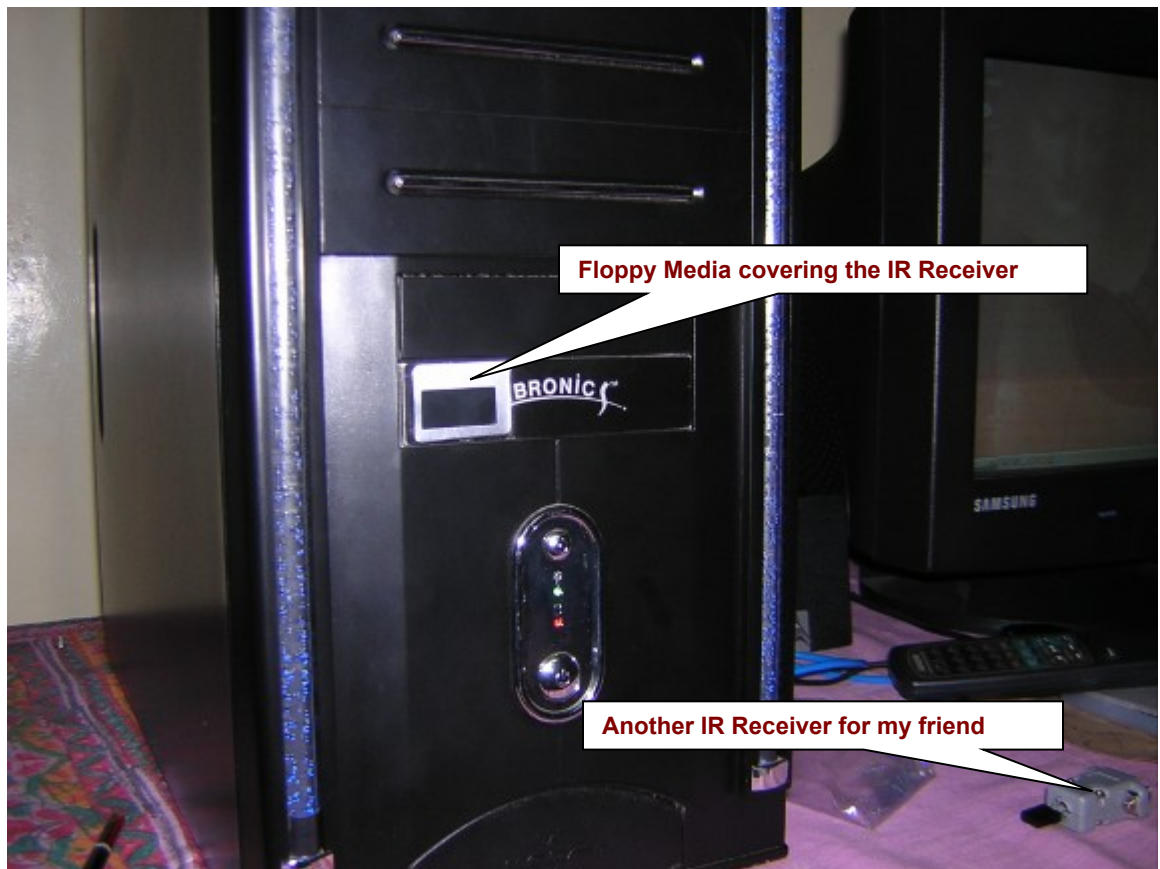

Fig 3 My Receiver

How It Works (from http://lnx.manoweb.com/lirc/)

The description of this circuit is rather simple. The RTS line of the serial port gives power to the voltage regulator which fixes it to 5 stable volts. A diode is there to protect the serial port from inverse current. The capacitor helps to keep a stable voltage; all the grounds are bound to the GND line of the serial port. The data output of the IR receiver is connected to the DCD line of the serial port together with a pull-up resistor coming from the power line.

Configuring WinLIRC

1. Open WinLIRC

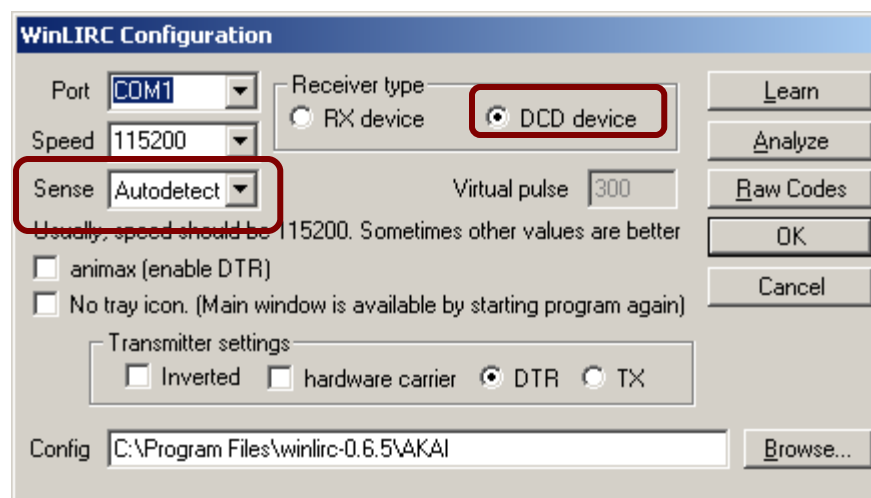2. Double click on the system tray icon. The WinLIRC dialog opens
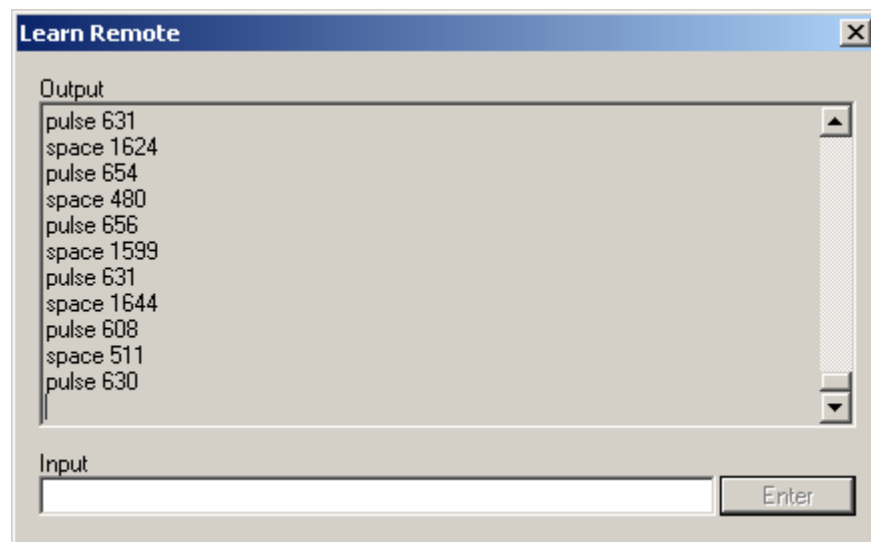

2. Click on Reconfigure
3.
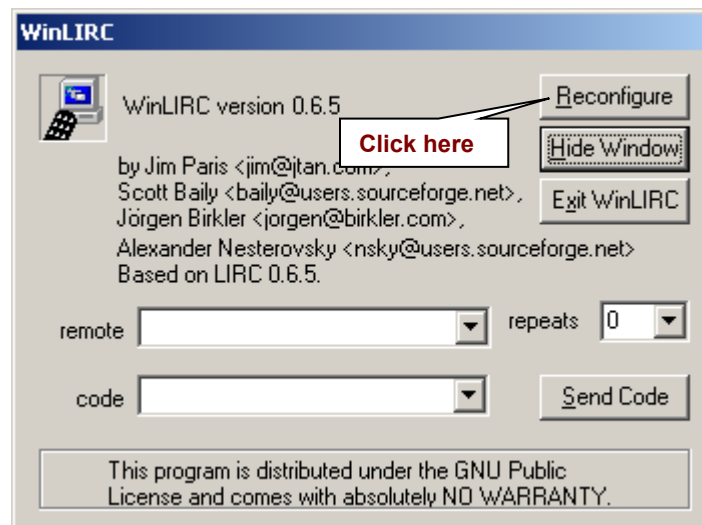
4. In the Configuration dialog choose the appropriate COM port to which the receiver is connected. Also set the options highlighted below
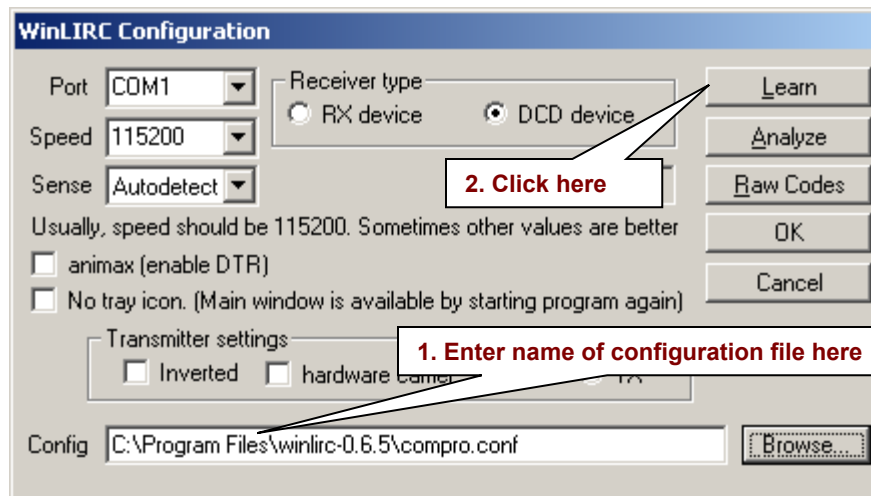
5. To check that the receiver is working click "Raw Codes".

WinLIRC Configuration

Port [COM1 ▼]   ┌ Receiver type ─────────────┐   [Learn]
                │ ○ RX device   ● DCD device │
Speed [115200 ▼] └──────────────────────────┘   [Analyze]

Sense [Autodetect ▼]   Virtual pulse [200   ]   [Raw Codes]
Usually, speed should be 1152   **Click here to check receiver**
☐ animax (enable DTR)   [OK]
☐ No tray icon. (Main window is available by starting program again)   [Cancel]
   ┌ Transmitter settings ──────────────────────┐
   │ ☐ Inverted ☐ hardware carrier ● DTR ○ TX │
   └──┘

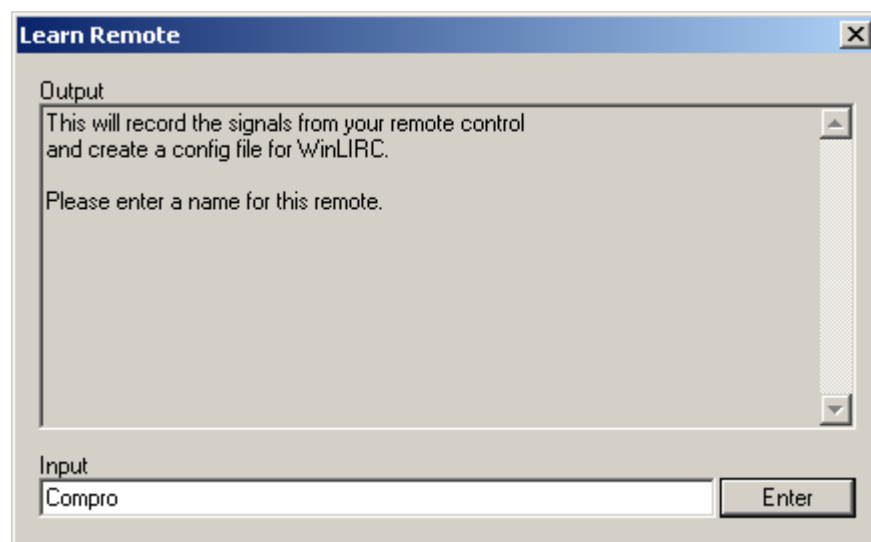Config [C:\Program Files\winlirc-0.6.5\AKAI   ]   [Browse...]

6. Press any button on the remote and if you see numbers scrolling as shown below your receiver is working!!! If not try troubleshooting the circuit

Learn Remote   [×]

Output
```
pulse 631
space 1624
pulse 654
space 480
pulse 656
space 1599
pulse 631
space 1644
pulse 608
space 511
pulse 630
```

Input
[   ]   [Enter]

7. Once your receiver is working, WinLIRC has to "learn" the various buttons in the remote and save this to a configuration file. (If your remote is listed in LIRC site you can skip this step and download the configuration file). Enter a name for the configuration file and then click on "Learn".

WinLIRC Configuration

Port COM1 ▼ ┌ Receiver type ─────────────┐   Learn
                │ ○ RX device   ● DCD device │   Analyze
Speed 115200 ▼ └────────────────────────────┘
                                                2. Click here   Raw Codes
Sense Autodetect ▼
Usually, speed should be 115200. Sometimes other values are better   OK
☐ animax (enable DTR)   Cancel
☐ No tray icon. (Main window is available by starting program again)

┌ Transmitter settings ──────────────   **1. Enter name of configuration file here**
│ ☐ Inverted ☐ hardware camer
Config C:\Program Files\winlirc-0.6.5\compro.conf   Browse...

8. Enter a name for the remote and press enter

Learn Remote

Output
This will record the signals from your remote control
and create a config file for WinLIRC.

Please enter a name for this remote.

Input
Compro   Enter

9. In the next two dialogs for "Desired margin of error for this remote" and "Gap and length" press enter for the default values

10. Follow the onscreen instructions to initialize baseline, get individual key codes and map them to key name.

I've configured WinLIRC for the remotes Akai RC-C823 & Compro Videomate PVR/FM. See the config files for them below if you have those remotes
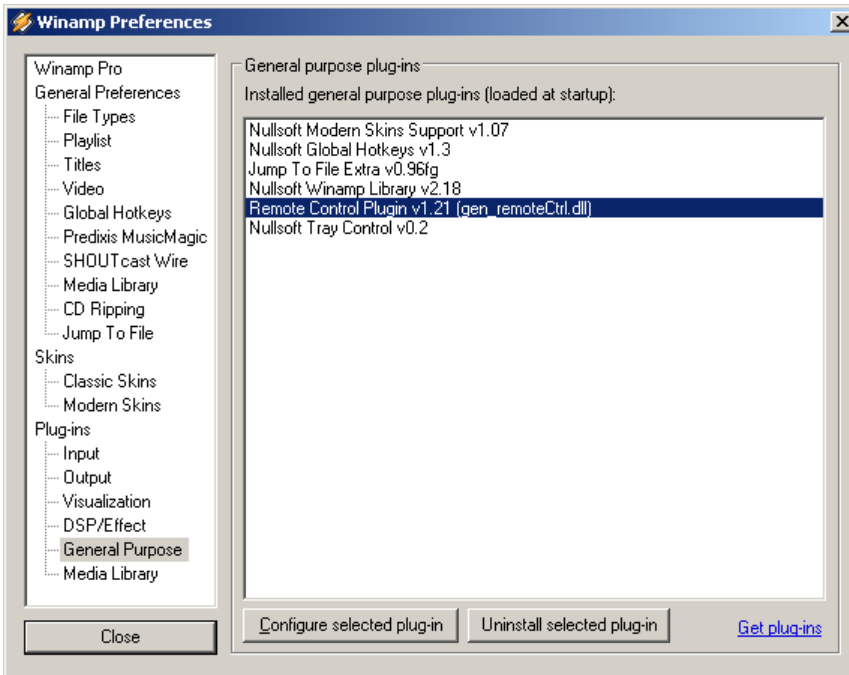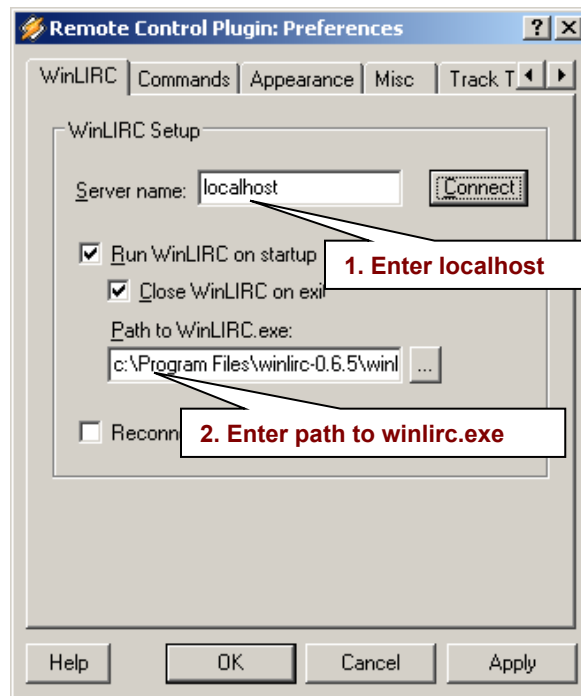

Akai

compro.conf

Configuring Remote Control for Winamp

1. This Winamp plugin's can be accessed through Winamp by Options>Preferences>Plugins>General Purpose

2. Double click on the plugin to configure it.

3. In the Commands tab add right click, select "New Remote" and enter a name.
4. Richt click on the remote created above, select "New Button" and enter a name for that button **(Note: This name should match the name given while configuring winlirc)**
5. Select the newly create button and from the right side choose the command to be executed when this button is pressed.
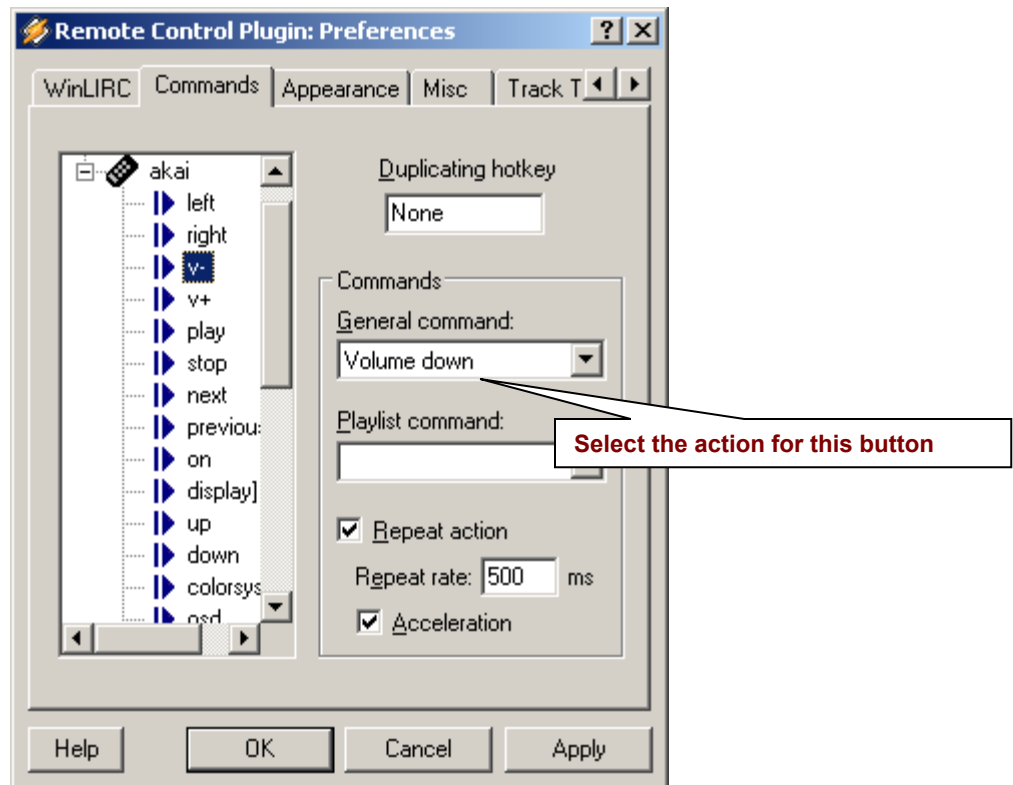
6. Repeat the process for all the other buttons. Fire up Winamp and make a jukebox of your PC!!!

Fig 4. My custom visualization for the Winamp remote control plugin!!!

References

1. WinLIRC Home Page – http://winlirc.sourceforge.net
2. LIRC Home Page - http://www.lirc.org/index.html
3. How to build a simple but cool IR (Infra Red) receiver - http://lnx.manoweb.com/lirc/
4. Remote Control Your PC - http://divxstation.com/
5. Remote control your computer! - http://modasylum.com/