Home Automation and Remote Control

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Here, a page on remote control with applications to home automation will occur. Both theory, practical solutions, as well as program code will be presented.

1. Revision history

Date	Description
2009-07-18	Initial version.
2010-03-20	Misc. minor updates.

2. My project — HARC

- This article describes my current project in the area of home automation and remote control (in particular infrared remote control).

3. Articles

- lirc2xml, a program for extracting infrared signal information from Lirc files.
- Modifying a Philips Pronto RU890 for 433 MHz RF-control.
- Blinds. Modifying the Rollotron 9200 for remote control.
- Balcony door control with Rademacher Samson. Planned.
- DIY Power IR-Blasters to be used (for example) with the GlobalCache GC-100. Planned.
- Creating the ultimate hard-button remote for the Tuxbox. Planned.

4. Downloadable files

- The project HARC, including source code.
- Listing of all possible codes, in Pronto format, for controlling the Intertechno family of 433 MHz RF controlled products. (Note that (almost) identical units are also sold by other names, such as Düwi and One for all). The codes are computed, not learned.
- Listing of all possible codes, in Pronto format, for controlling the RS200 series of 433 MHz RF controlled products, once sold by Conrad electronics under their own name. The codes are computed, not learned.

5. External links

5.1. Projects

- Openremote is a brand new project that looks very interesting and promising. There is also a large number of similarities between their approach and Harc, like the emphasis on using open standards and free software. Forum (not very active presently), Twitter, YouTube.
- The JP1-Project and Forum is a very unique project. It aims at complete control over

the remotes made by Universal Electronics (UEIC), which include the brand names "One For All" and "Radio Shack". Through careful study of its hard- and firmware, techniques and programs for custom programming a remote, equipped with a 6-pin connector (on the remote's PCB called "JP1", giving the project its name) were developed. Thus, an off-the-shelf remote can be taken much beyond its original capacities. Most importantly, it can be programmed from a computer to generate "arbitrary" IR-signals. Very knowledgeable when it comes to decoding of obscure IR protocols.

- LIRC (Linux InfraRed Control)LIRC is well established, mature, and active free software project. It is used in very many free software projects. It contains support for a large number of infrared senders as well as receivers. There are also a large number of user contributed configuration files for different IR remote controls and devices, in general consisting of leaned commands. No forum, however a mailing list exist, archived here.
- Tonto is normally referred to as an alternate configuration ("CCF") editor for the first generation of the Philips Pronto remote controls. It is a free replacement for the original ProntoEdit program. Unfortunately inactive since 2004.
- "Eventghostis an advanced, easy to use and extensible automation tool for MS Windows. It can use different input devices like infrared or wireless remote controls to trigger macros, that on their part control a computer and its attached hardware. So it can be used to control a Media-PC with a normal consumer remote." Since it is Windows-only, it is presently of limited interest, at least to me. Written in Python, there should be hope however... It can be considered as a free (GPL) alternative to Girder.
- Bettyhacks.com (in German). Recently (2006–2007), some German TV channels tried to establish the "interactive remote" called "Betty". The project failed miserably and was discontinued in 2007. However, the hardware is quite powerful (see the WiKi pages of the link) with LCD 160 x 128 Pixel, LPC2220 - 32bit arm7tdmi-s cpu, and 8 Mbyte flash. It can be had "used" for surplus prices. An open-source project "Boop" was started to write free software for it.
- sbprojects.com. This site contains a number of good theoretical background articles on IR control.

5.2. Discussion forums

- Remotecentral is possibly *the* premium site for issues like discrete code search. Hardware reviews etc is unfortunately often of limited interest outside of the U.S.A., since much of much of hardware is only available on one side of the Atlantic. Their collection of IR-codes is vast, but, IMHO, severely flawed: there is a gigantic number of configuration files available, each one tied to a particular remote control (-family), containing a lot of irrelevant "cruft" like button layout etc, having a more-or-less arbitrary name. The codes are in general learned and not always cleanly leaned. (It is one of the goals of Harc to overcome this problem by proposing a general code exchange format, using canonical commands names, without the cruft.)

- In the German language home theater forum Beisammen, for this topic interesting postings (some by me using the nickname "Barf") are, somewhat step-motherly, delegated to the sub-forum "Zubehör" (Accessories). Very qualified in many areas, remote control is not one of them — not even a dedicated sub-forum exists.
- AVSForum

5.3. Manufacturer

- IRTransNice IR sender/receiver hardware. Forum.
- GlobalCachéNetworked IR-Sender etc.
- EZControl Networked sending of RF control signals for, e.g., FS20 and Intertechno switches. (Their forum was unfortunately closed.)
- Promixis is known for its products Girder (windows based automation tool) and Netremote (Programmable, network dependent remote control GUI for Windows or Windows Mobile/CE). Forum.
- USB-UIRT. An IR sender/receiver with USB connection. Forum
- Philips Pronto
- Intertechno. Cheap RF-Controlled switches and dimmers. In German only.
- Marmitec. X10 for use in Europe.

5.4. Some of my forum contributions

- Review and analysis of the One for all Light Control In German.