



Say Good Bye to Infrared and Hello to Radio based Remote Controls

A past due consumer electronics evolution

Sometimes things are as they are for no specific reason, other than that was the way it was. One good example is the "point-and-shoot" of infrared-based remote controls. Why are we still using IR to control our home electronics?

Just for fun, lets start with some history. Remember, the radio standing in the corner of the room, the television set later on top of it (or below); the good old times that you actually had to stand up and walk over to the TV set to change channels or to adjust the volume? We don't need to do that anymore today. After a short intermediate period of using wired remote controls, you cannot buy a TV, set-top box or home entertainment system that does not utilize some type of accompanying wireless gadget coming with it, to control it. Actually many home entertainment systems don't even have a way of manually adjusting the controls – its all done by the remote.

Still there is something weird with these IR remote controls compared to other mobile electronics we use in other aspects of our lives. We usually do not have to point our electronic car key towards our car to lock or unlock it. I am sure that you do not point your cell phone to a base station – for the simple reason that most likely you would not even know where the base station is, that you are connecting to. Our laptops don't have to be pointed at a Wi-Fi router. But... we still need point our IR home electronics remote control at the television. If there is something between us and the TV, or we are too far away, we know it won't work properly.

Here is another odd anachronism. When we push the "+" volume button, we have to look at the television or at the display of the set-top box to check whether the volume indeed is going up. Most IR remote controls do not have a display. Why not? We are used to dazzling small displays on cell phones or photo cameras that even can show movies without a problem. Wouldn't it be easier to look at the remote control to see what channel we select, instead of a video screen 5 meters away?

Say hello to RF - Radio frequency controlled devices. RF based remote controls do not have to be pointed and also have a better range, going through doors and walls. Even better, radio technology is as reliable and almost as inexpensive as infrared.

Yes, the radio-based remote control is past due, and the infra-red based remote control is on its way out, even to the point that within a few years we will look back with amazement at such antique IR powered remote controls and marvel at the fact that we had to point and shoot to control our home entertainment systems.

How is this going to happen? Esthetics is playing a key role in this evolution from IR to RF. With a nice flat screen on the wall, compact integrated media and music boxes integrated into the system and hidden in cabinets, and a sub-woofer stashed away behind the couch (all wirelessly interconnected), who needs or wants a set-top box in the room that needs to be pointed at with a remote control to change a channel? By using RF remotes, the media control box could be in a closed cabinet, even in a cabinet in another room... or hidden away in the closet.





The leading Consumer Electronics companies (like Panasonic, Philips, Samsung and Sony) have realized that there is a too large a variety of different protocols for IR-remote controls. Therefore the initiative has been taken to set up the RF4CE Alliance (www.rf4ce.org) that has established a worldwide standard for RF-remote controls. The frequency band selected for this is the worldwide available 2.4 GHz (known from Bluetooth and Wi-Fi) and the protocol is based on the IEEE 802.15.4 standard that has existed since 2003.

These RF remote controls will easily transmit through walls and cabinet doors, and enable "two-way" communications, allowing the radio or television set to provide feedback to the remote control, eg. channel or volume information. This will eliminate the need for the user to have to alternate from looking first at the keypad and then to peer at the television screen for the "green bar". This two way remote concept capability will also open the door to interactive television with features such as remote control voting and true TV shopping.

By leveraging ultra low power conservation technologies, RF remote controls also have the promise to be able to run for longer times on smaller batteries. Together with the standardization where one remote control can be used for multiple boxes, this means that, for a change, the use of batteries can be reduced with the arrival of a new technology. This is good news for our environment and growing of our green economy.

And there is more. Once established as a standard, RF remote controls will be able to do much more than switching television channels. New applications can include home automation, security, health monitoring, etc.

The advantage of an open standard is that it invites other companies to develop their applications on it as well: dimming/switching lighting, opening/closing curtains, control the heating (or air-conditioning). This is something that is theoretically possible with IR remote controls as well but history has shown that the large variety of infrared protocols has been a major roadblock that RF and the new RF4CE standard is now solving.

As with a lot of new technology – once implemented - we will ask ourselves, how did we live our lives before? Pointing at devices? That is so old fashioned....

The adoption of RF remote controls is going to change how we interact with the world around us as well as how we take care of our environment. Bye-bye IR. Hello, RF. What took so long?

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