

*Universal Remote Control, Inc. v.  
Universal Electronics Inc.*

**IPR2014-01102 (USPN 5,228,077)**

**IPR2014-01103 (USPN 5,552,917)**

**IPR2014-01104 (USPN 5,414,761)**

**IPR2014-01106 (USPN 5,255,313)**

Oral Hearing, August 19, 2015

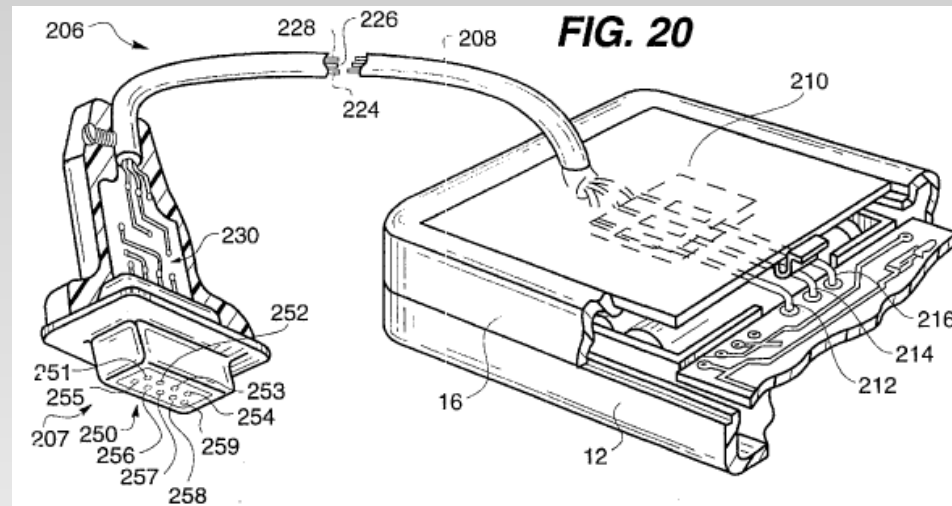
Judges Blankenship, Medley and Pettigrew

# Overview

- **Introduction to the Darbee Patents**
  - USPN 5,228,077
  - USPN 5,255,313
  - USPN 5,552,917
  - USPN 5,414,761
- **Lack of Motivation to Combine References**
- **Claim Construction**
- **Secondary Considerations of Non-Obviousness**
- **Real Party in Interest**

# Introduction to the Darbee Patents

- Remotely upgradeable universal remote controls
- Code data for controlling an appliance is downloaded to the remote through an input port



(‘917 Patent, Ex. 1001, Fig. 20.)

## Representative Claim of the Darbee Patents

1. A remote control comprising input means including a set of keys or pushbuttons for inputting commands to the remote control, infrared signal output means for supplying an infrared signal to a controlled device including IR lamp driver circuitry, a central processing unit (CPU) coupled to said input means and to said signal output means, memory means coupled to said CPU, code data for generating infrared codes stored in said memory means, and two-way data coupling means coupled to said CPU for enabling at least one of instruction codes or of infrared code data for generating infrared codes to be supplied from outside said remote control through said two-way data coupling means directly to said CPU for entry into said memory means to enable a user of the remote control to operate a selected controlled device upon inputting commands to the remote control by depressing selected keys of the remote control and to be transmitted from said remote control through said two-way data coupling means to a computer.

(‘917 Patent, Ex. 1001, Claim 1.)

# Prior Art at Issue

## Ciarcia

### CIARCIA'S CIRCUIT CELLAR

Steve Ciarcia

# Build a Trainable Infrared Master Controller

*This device can control all your home entertainment equipment*

First of all, this is not the second part of a two-part article. As you will come to understand, this month's project is the solution to a problem I aggravated by building last month's project (an infrared remote control for my home control system). Confused? Let me explain.

While people residing in warm climates tend toward Jacuzzis and hot tubs, some of us who live in colder climates prefer not to tempt fate and brave the elements to tend toward Jacuzzis and hot tubs. Of course, I could succumb to the winter sports thing. You know, skiing, skating, snow this, and snow that, but it would be much too great a chore at this stage to reorient my sedentary lifestyle to enjoy northeast winters. I hibernate like most indigenous mammals and wait for the color outside the window to metamorphose from white to green.

About a year ago, I decided that holing up in the cellar for six months a year was antisocial. While the isolation proved beneficial in coming up with great projects for the summer and fall issues, I did find that by the time March rolled around, I looked very much like a bear that was leaving his cave, and I communicated just about as well.

In an attempt to improve the quality of winter life and break the cycle of hibernation, this last year I decided to spend some of the time aboveground (upstairs) in an environment that allowed me to observe the realities of my existence (through the windows) and absorb the cumulative knowledge of our culture (watch TV).

In layman's terms, I built a media room. Not just a TV den, mind you, but a room where I could be immersed in a synthesized environment so far from the ice and snow that six months seemed like over-

night. Of course, this audiovisual experience was tastefully produced by massive amounts of electronic equipment.

The beautiful scene of the tropical island was accurately reproduced on a Kloss 2000 projection TV. You'd think you were sitting next to that tinkling waterfall as the music moves above and around you in complete surround sound. And when the warm breeze of island spring (actually the heat wafting from the seven amplifiers) is tumultuously interrupted by a hurricane faithfully reproduced with 2400 watts of Nakamichi audio power through a pair of B&W 808s (800 pounds each), two Speakerlab subwoofers, and 11 Canton surround speakers, you feel like the walls are about to explode. Sometimes it is good not to have neighbors.

Enough of warm breezes. I now had a new problem. In addition to all the audiovisual stuff, there were a couple of VCRs, an FM tuner, and a CD player. All this equipment required the 14 remote hand-held controls shown in photo 1. Media rooms are a great idea, but you can't expect people to glue a dozen remotes on a long board. There had to be a better way.

**IR Master Controller to the Rescue**  
This month's project, an infrared Master Controller that takes charge of all your gadgets, can prevent "controller clutter." It "learns" the infrared signals for each function and plays them back on command. It uses a six-button keypad to select the device and functions, shows on a two-line LCD, and a single button. Do it, to execute what's selected.

I am not the first person to design a trainable remote control. More than a year ago, I bought a similar device made by General Electric, called Control Central. This device could be trained to simulate the functions of four remotes. Control Central and similar commercial

units have two major shortcomings. First, all the acquisition, data-reduction, processing, and memory circuitry is contained in the single hand-held unit. Given the finite physical size of today's integrated circuitry, there is a limit to the capacity of such a device that allows it to still be cost-effective. Second, it is designed for use by a mass audience assumed to have a finite set of electronic devices. The buttons have predesignated nomenclature, so it is not user-programmable.

You can still train your GE controller to simulate the remote control for your CD player. The Mute button on the GE unit could be trained to be the Auto Repeat on your CD player remote, for example. Unfortunately, every time you want to repeat a CD, you'll have to remember to press Mute since there is no Repeat button on the GE.

I am not criticizing the GE Control Central. I am merely making a case for designing something different for a very vertical, gadget-happy, affluent audience: BYTE readers. Why tie a design to the lowest common denominator. Instead, yell "let them eat cake" and demand the remote to end all remotes: the Circuit Cellar Master Controller!

The shortcomings of the GE and other trainable remotes are the strengths of the Master Controller. Rather than attempt to contain all the necessary intelligence and processing circuitry, the Master Controller temporarily utilizes an external computer

*continued*  
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## Hastreiter

### United States Patent [19] Hastreiter

[11] Patent Number: **4,667,181**  
[43] Date of Patent: **May 19, 1987**

[54] **KEYBOARD DATA INPUT ASSEMBLY**  
[75] Inventor: **James J. Hastreiter, Eden Prairie, Minn.**  
[73] Assignee: **Honeywell Inc., Minneapolis, Minn.**  
[21] Appl. No.: **514,218**  
[22] Filed: **Jul. 15, 1983**  
[51] Int. Cl. **G06F 3/02**  
[52] U.S. Cl. **340/365 A; 340/365 C; 340/825.79**  
[58] Field of Search **340/365 A, 365 S, 825.79, 340/825.94, 365 R, 365 C, 365 L, 365 VL, 365 E, 825.95, 825.96, 825.82, 825.85; 364/709, 712; 200/5 A, DIG. 1; 178/17 C, 18; 179/90 K; 361/351, 352, 397, 398, 400, 416**

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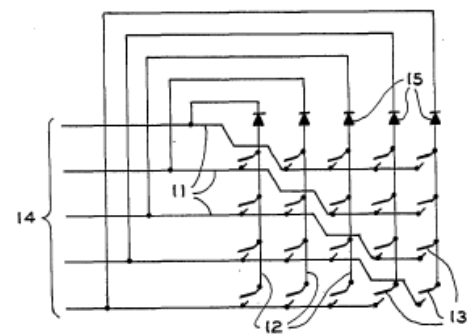
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[57] **ABSTRACT**  
A keyboard assembly is disclosed in which complementary arrays of first and second switch contacts are connected in equal sets and each set of first contacts is connected to a separate set of second contacts through a diode so that the connected sets of contacts do not contain contacts from the same switch, thus permitting keyboard terminals individually associated with the connected sets of first and second contacts to be sequentially enabled while reading the unenabled terminals to determine actuated switches.

11 Claims, 4 Drawing Figures



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