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Broadening Our Horizons

By Peter Corcoran

As many of you will be aware, *IEEE Consumer Electronics Magazine* evolved from the quarterly newsletter of the IEEE Consumer Electronics (CE) Society. Jim Farmer edited the newsletter before I took over from him during 2010. I ran the newsletter for just over a year as a lead-in to the magazine. In a nutshell, the intention of introducing the magazine was to enhance the credibility of this CE Society publication to attract additional peer-reviewed content and encourage invited contributions from industry. By "upping our game," *IEEE Consumer Electronics Magazine* also generates licensing revenues for the Society from the IEEE *Xplore* library and creates an IEEE-wide focal point for CE-related news and technology developments.

But one of the drawbacks of our magazine is that its primary circulation is limited to members of the CE Society. While additional copies are distributed both at trade shows and conferences by the CE Society and by IEEE Publications, there is currently no mechanism for IEEE members outside the CE Society to obtain a personal subscription to the magazine. As editor, this is something I have wanted to fix for a while, and I am happy to let you know that we have some new initiatives that will help bring *IEEE Consumer Electronics Magazine* to a wider audience in 2014.

SPREADING THE WORD

Now, while I tell you about these initiatives, it is also helpful to explain a bit about my vision for *IEEE Consumer Electronics Magazine* and why I feel that broadening our distribution base is an important step forward for the magazine and the CE Society as well. Let me start by paraphrasing a tenet that our past president, Stephen Dukes, used frequently: CE converges and interfaces with many other fields of engineering; as a consequence, the CE Society should be a second society for many IEEE members.

In the same vein, *IEEE Consumer Electronics Magazine* should be of wide interest across many IEEE Societies and their members. It is a nice benefit for the CE Society members, but we should not keep it all to ourselves.

To start the ball rolling, the CE Society has supported a much wider distribution of the January 2014 issue to members across a range of other IEEE Societies. We printed and distributed more than 25,000 copies of the January issue to raise awareness of the magazine and encourage other societies to join us both as contributors and subscribers to *IEEE Consumer Electronics Magazine*. I can also add that the IEEE Product Safety Engineering Society (PSES) will join the CE Society in 2014 as a partner in the magazine, and we hope to have a dedicated section for PSES news and events during 2014. I hope that we will see more societies joining us in 2014–2015 and expect to see a bigger and better magazine by the end of the year.

WHAT'S IN THIS ISSUE

Let's take a quick tour through the various features and articles in this issue.

CE NEWS, EVENTS, AND CHAPTERS

We have the usual overview of CE Society news and events. This includes a list of 2014 conferences sponsored by your Society, with the main event dates. We have a number of reports of recent Society events, including the IEEE GCCE and a symposium held in the United Kingdom. There are a number of chapter reports from the Dallas and Santa Clara Chapters and an update from Tom Coughlin on activities related to the Future Directions initiative.

If you are interested in participating more actively in the running and decision making for the CE Society, there is a call for nominations for the 2014 elections to the Board of Governors (formerly the Society Administrative Committee). Even if you are not personally available, you may know other Society members you feel would make a strong contribution. Please feel free to nominate them. Current members of the Board of Governors will be happy to answer any questions you might have about the level of commitment and responsibility taken on by board members.

Finally, we have an article from Tom Coughlin on his experience as chief nominator of Ralph Baer for the IEEE Edison Medal. This article provides an interesting insight on the process involved in completing an IEEE nomination award and compliments our

feature article on Ralph later in this issue. I am delighted to announce that this nomination was successful, and Ralph was recently elevated to IEEE Fellow via the CE Society and is this year's recipient of the Edison Medal.

Next, let us review the main feature articles in this issue.

RALPH BAER—THE FATHER OF COMPUTER GAMING

By the 1960s, millions of TV sets were installed in U.S. homes, and the broadcast industry had established itself as part of the industrial landscape. But no-one had realized at that point of time that the TV could be more than a passive viewing device. In 1966, while working for Sanders Associates Inc., engineer Ralph Baer began to investigate mechanisms to enable interactive games to be played on a conventional TV set. Between 1967 and 1969, he and colleagues Bill Harrison and Bill Rusch developed, under his direction, several video game test units. The outcome of their work was the "Brown Box," a prototype for the first multiplayer, multiprogram video game system. Sanders licensed the system to Magnavox. In 1972, Magnavox released the design as the Magnavox Odyssey, paving the way for today's video consoles and computer gaming industry.

As a celebration of Ralph Baer's achievements and his award of this year's Edison medal, we have a feature article on Ralph written by his long-time partner and associate, Robert Pelovitz. This provides some unique insights into Ralph and his work and contributions to the computer gaming industry. There is also a short biography of Ralph and the origins of his work on the original Brown Box system.

BLUETOOTH LOW POWER—PART II

Our next feature is from Joe Decuir, vice chair, Bluetooth Architectural Review Board. This is the second of a two-part article. The Bluetooth industry consortium had defined a new radio in Core Specification 4.0, originally known as *Bluetooth Low Energy* and rebranded *Bluetooth Smart*. The first article from our January issue covered low-energy radios, Bluetooth Smart specifications, and power economics. In this issue, the focus is on how it works in practical use cases and workflows. It includes a look at some newer features of Bluetooth Smart that have not yet been released and explores a range of application areas for this next-generation consumer technology.

WIDE DYNAMIC RANGE TECHNOLOGIES FOR MOBILE IMAGING

Wide dynamic range (WDR) technology increases the dynamic range of an imaging sensor by physically improving a pixel performance or digitally applying multiple exposure times for each pixel. This enables users to easily take a picture in case of a back-lit scene, indoor scene, or other low-lighting conditions or extremes of high-/low-lighting levels. These technologies are particularly relevant to the latest generation of mobile and smartphone imaging systems.

In this article, a range of WDR technologies are reviewed, and some test results are provided, which guide the use of different techniques according to the overall scene conditions and the underlying imaging platform. Readers working in digital imaging will find the article very useful, and anyone with a smartphone should be interested in understanding some of the future challenges in this field.

TAKING HAZARD-BASED SAFETY ENGINEERING TO THE NEXT LEVEL

I have mentioned above that PSES will join the CE Society as partners in *IEEE Consumer Electronics Magazine* during 2014. This article is taken from a past conference presentation at the 2010 Product Safety Engineering Symposium and provides a new approach to hazard-based safety engineering (HBSE) that applies formal safety science techniques. By expanding HBSE concepts and integrating other safety science and engineering techniques, including risk management, systems and reliability engineering, functional safety, and human factors, to address many different forms of harm, hazards, and susceptibilities across a broad range of products and applications. **<AU: The intended meaning of the preceding sentence is not clear. Kindly clarify.>** This work should be of specific interest to any readers involved in product design and lifecycle planning and will be of general interest to any engineer who wants to be more aware of best practices in product safety and hazard analysis.

REGULAR COLUMNS AND PRODUCT REVIEWS

We also include our regular set of columns with this issue.

In his "Bits Versus Electrons" column, Bob Frankston writes about HTML5. Bob has been building a home control application in HTML5—while this might, at first, appear counterintuitive, you'll find that it actually makes a lot more sense than you might think. As usual, there are a number of thoughtful historical and philosophical insights offered to the discerning reader.

Tom Coughlin in his "Art of Storage" column offers a review of state of art in storage technologies for today's CE devices and systems. In particular, CE is embracing the cloud and a range of home and away storage solutions are covered. And as is increasingly common these days, most roads lead to the cloud, whether it is a personal or a global one. One thing is sure: the demand for enhanced CE storage continues to grow for the foreseeable future.

In our "Standards Corner," we have an update on new IEEE standards that have been issued during the latter part of 2013. We also have a short discussion and overview of the IEEE 1874 standard from Will Lumpkins, who has contributed another article in the CE News column in his role as chair for the IEEE Dallas CE Chapter.

Finally, our "IP Corner" article for this issue focuses on the innovations and inventions of Steve Jobs and includes an introduction to the use of design patents as a means to protect the design aspects of CE products. There is an extensive review of Jobs' main contribution in terms of both utility and design patents, and the reader should find this review to provide a number of

interesting and insightful comments on the general use of patents and other forms of IP within the CE industry.

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