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4th EuroITV 2013 Workshop on Interactive Digital TV in Emergent Economies – Thinking Outside the TV Box

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ABSTRACT
The popularity of TV worldwide and particularly in emergent markets opened a window of opportunities for many people working with Interactive Digital TV and related topics. New solutions and new business approaches are supposed to rise from this scenario, creating many new job opportunities. The main goal of this workshop is to bring together researchers, educators, and industry related people working in the deployment of solutions for DTV Systems and associated Applications in emergent countries. Along this workshop, discussion about the adopted policies, technologies, state-of-the-art, middleware solutions, content models, interactivity systems, and future applications in the researchers' countries are going to be the main action. Indeed, it is going to be a global forum where the participants will be able to identify common issues and exchange experiences, sharing the adopted solutions for common known problems. The organizers hope to keep building and maintaining a research network that will help people working in developing countries to increase their technical contributions in Interactive Digital TV related issues.

Categories and Subject Descriptors
A.0 [**General**]: Conference proceedings.

A.1 [**Introductory and Survey**]

General Terms
Documentation, Economics, Reliability, Experimentation, Human Factors, Standardization, Languages, Theory, Legal Aspects.

Keywords
Interactive Digital TV Systems; Digital TV Standards; New Applications for Interactive Digital TV

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1. INTRODUCTION
More than only an entertainment media, Interactive Digital TV has been used as an efficient tool to improve people's lives. Digital social networks, E-government, E-bank, and many other digital applications are been moved to the TV world and are already accessible in many communities in Europe, USA and Asia. In fact this movement is the proof that the information age is a reality and it is possible to witness several actual examples of how people's lives have been transformed by these instruments. In fact, access to information has become easier and people work cooperatively despite being scattered around the globe, even in extremely remote locations. Overall, wireless communication has revolutionized the lives and the way of working of many people and, with the ever growing miniaturization in electronics, many new devices have been developed and inserted in every-day life.

With the deployment of Interactive Digital Television in emerging economies in South America like Brazil and Argentina, in India, China, Russia, in Africa and in West Europe countries, something alike happened. There is a growing demand for new services, new devices and even more content to be provided, as well as many ways of integrating these new features with existing technologies [1]. Reports about the changes obtained after the introduction of Digital TV in developing countries will help us to understand its real importance and to plan how to contribute for its future [2].Within the scope of this workshop we would like to focus on 'thinking outside the box' of traditional Digital TV platforms – we aim at contributions in the wider field of audio-visual services in emerging countries as well.

Additionally to its natural potentiality for digital inclusion, the Interactive Digital Television provides a great incentive to its adoption, for it means a cheaper way to supply access to technology and knowledge in emerging economies [3]. It also provides scenarios for integrating Television with other areas of knowledge such as smart environments and ubiquitous systems, allowing access to services until now not easily achievable [4]. These and other related topics are the main discussion object of this workshop. We would like to learn from developers and scientists coming from emergent countries the adopted policies, technologies, middleware, content models, and about the future applications they are currently working on.

2. WORKSHOP

The immediate goals of the workshop are to discuss the state of the art of Interactive Digital TV in developing countries; to identify new applications that may benefit the life of people living in these countries; to define common characteristics of the adopted technologies; to discuss middleware definitions and interactive software development for Digital TV; to discuss content production and new copyright policies for digital production; to discuss policies and regulations in emergent countries; and to identify topics of mutual interest leading to future cooperation partnerships.

Having the workshop goals in mind, a list of subjects that could find resonance in the community involved was defined. The main topics of interest include: the state of the art of interactive digital TV in emergent economies; interactive applications for Digital TV; educational applications; healthcare applications; T Government and T Commerce proposals; description of the characteristics of the adopted technologies; new middleware definitions; interactive software development for Digital TV; integrating semantic technologies with interactive DTV; content production and copyright policies for digital production; and service deployments.

In fact, the accepted papers will cover many of the items listed above and they have been selected on the basis of their relevance to the workshop and on the quality of the presented work. In order to facilitate the discussion of the presented topics, all selected papers were listed in the workshop web site. Participants were able to read them in advance and were asked to bring their notes and thoughts to the discussion table.

The workshop itself was planned to have two major parts. In the first one, authors should present their works in a 30 minutes slot of time, this time was divided in 20 minutes for the presentation itself and 10 minutes for particular questions about the work presented. The second part of the workshop consists of a round table discussion about the main subjects presented. The discussion focus shall be about the issues faced by the participants themselves in order to consolidate Interactive Digital TV in their own countries. We planned also to summarize the state of this technology in the countries represented in the workshop.

An illustrative poster containing the results of the discussions is going to be released and presented to the other participants of the conference in the poster section giving them the opportunity to learn about our conclusion.

We believe that Interactive Digital TV is a very interesting topic all over the world and that is a great opportunity to develop new media, new ways of interacting with consumers and new job opportunities for scientists, developers, artists and other related professionals. Emerging countries like the ones that participated in this workshop have a significant role in the development of this technology.

This workshop will have reached its goals if the participants succeed in building a permanent discussion forum, capable of contributing to each other works and facilitating the communication among people with interests in developing Interactive Digital TV Systems.

3. ORGANIZERS

Prof. Dr.-Ing. Vicente Ferreira de Lucena Jr: is professor of Digital Systems in the University of Amazonas in Manaus, Brazil. He pursued his Ph.D. (Dr.-Ing.) at the University of Stuttgart in Germany where he worked with software engineering for automation systems. Since 2002 he has been working with software development for interactive digital TV and convergent systems in Brazil.

Prof. Dr. Artur Lugmayr describes himself as a creative thinker and his scientific work is situated between art and science. Starting from July 2009 he is full-professor for entertainment and media production management at the Department of Business Information Management and Logistics at the Tampere University of Technology (TUT): EMMi – Entertainment and Media Production Management. His vision is expressed as to create media experiences on emerging media technology platforms.

Prof. Dr. Zhiwen Yu is a professor and vice dean in the School of Computer Science at Northwestern Polytechnical University, China. He received his B.Eng., M.Eng., and Ph.D. degree of Engineering in computer science and technology from Northwestern Polytechnical University. He has worked as an Alexander Von Humboldt Fellow at Mannheim University, Germany, and as a research fellow at Kyoto University, Japan, and a post-doctoral researcher at Nagoya University, Japan. His research interests cover pervasive computing, context-aware systems, human-computer interaction, and mobile Internet.

Dr. Arpan Pal has more than 20 years of experience in the area of Signal Processing, Communication and Real-time Embedded Systems. He is with Tata Consultancy Services (TCS), where he is heading research at Innovation Lab. He is also a member of Systems Research Council of TCS. His main responsibility is in conceptualizing and guiding R&D in the area of cyber-physical systems and ubiquitous computing with focus on applying the R&D outcome in the area Intelligent Infrastructure. His research interests include Home Infotainment, Mobile phone and Camera based Sensing and Analytics, Physiological Sensing, M2M communications and Internet-of-Things based Applications. He is a B.Tech and M.Tech from Indian Institute of Technology, Kharagpur, India in Electronics and Telecommunications.

4. ACKNOWLEDGMENTS

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