

From sportsvideo.org

HEADLINES

3DTV: Look ma, no glasses!

By

Sep 27, 2006, 05:02 PM

by Andrew Lippe

3DTV, a multinational project funded by the European Commission with 19 institutional partners from seven countries including Turkey, Germany, the UK, Finland, Czech Rep, Bulgaria and Greece, is creating an end to end 3DTV system that promise to make wearing 3D glasses a thing of the past.

Levent Onural, project coordinator at 3DTV and also professor at Bilkent University, organized a team of about 200 contributors from 19 institutions. The goal? To make goggle-less 3DTV a reality by 2009 and it plans to unveil their visions at the 3DTV Conference from May 7-9, 2007 on Kos Island in Greece.

"3DTV viewing is a totally new mode of visual experience," says Onural. "HD is a crisp, clear, high-end TV mode but it is still in 2D. The electronic infrastructure of 3DTV is much more demanding and complicated compared to that of any commercially available 2D system."

The project has received support and funding from the European Commission in the amount of 6.15 Million Euros. Spending for the entire project is around 10MEUR.

Though they don't have major manufactures yet, "many large manufacturers are well aware of our joint research work," says Onural. Early transmission of 3DTV will likely be transmitted through an IP network internet through video streaming specifically designed for the 3D data. A problem with 3D is that, unlike 2D, it requires a larger bandwidth demand for real-time transmission. The large bandwidth of capturing an image, for instance, of a soccer ball or football would require significant compression to be displayed.

And building the 3D images requires multiple cameras capturing multiple views. "The consecutive views in a multi-view video scheme are just a few degrees apart, and therefore, views are very similar to each other with little (but important) content difference," says Ornural. "Instead of sending the complete video content for a view, only the difference signals transmitted and that requires much less bandwidth to transmit."

The cameras will capture images from many angles in order to create the illusion of reality using "integral imaging." And shooting a sporting event could require anywhere from 8 to more than 20 cameras for even a simple production. "The capture unit will be an array of regular video cameras and the data will then be converted using 3D graphics," says Ornural.

Compression remains a huge task for researchers. "We have developed many new algorithms and got novel results in all technical aspects of an end-to-end 3DTV system," Onural adds. One of those technologies was autostereoscopic displays. "It separately directs two different views, at a slightly different angle, to each eye," Onural says. 3D viewing previously relied on stereoscopy technology and special 3D eye goggles in order to function. The autostereoscopic monitors have been made to reduce discomfort and eliminate the need for 3D goggles. Autostereoscopic displays can also display non-3DTV quite easily.

The 3DTV team also has a long term goal of creating holographic television where replicas of 3D scenes and objects are created through light and create a TV like a coffee-table where the smaller size replicas of objects are moving on it. 3D video streaming will also be available on the Internet.

© Copyright 2005-2006 sportsvideogroup