Watermarks for mobile television

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A video watermark protects the production chain of interactive content for mobile TV. © Fraunhofer SIT

For centuries, watermarks have protected written documents from forgery. Now their digital brothers are to prevent videos from being released in the Internet before their television premieres. Electronic watermarks are used to locate leaks.

People use their cell phones much more actively than their television or radio sets. In order to make mobile television more attractive in the future, program makers intend to provide interactive content in addition

to simple viewing. Conventional programs are given special processing for this purpose. Before airing their TV material, broadcasters send it to external service providers who process it and incorporate additional information.

Special protection is needed to ensure that programs will not be published on the Internet before their official TV premieres. In the porTiVity project, the Fraunhofer Institute for Secure Information Technology SIT has developed just such a form of protection: a robust video watermark that permanently labels TV material without hindering the processing work. If such a protected program appears prematurely on the Internet, the broadcasters can use the watermark to locate the leak in the production chain.

“We know from our experience of earlier projects that viewers who receive television via cell phone or PDA would like to become actively involved in the programs,” says Patrick Wolf of the Fraunhofer SIT. The researchers in the porTiVity project are therefore developing a rich media iTV system for mobile television which allows viewers to directly select objects in the picture. “During a football match, for example, viewers could click on individual players to view their goal and assist statistics,” says Wolf. “In this case, the viewer receives additional, optional content. However, program makers can also use the additional information for interactive prize draws or edutainment formats.”

In addition, porTIVity provides an authoring system which allows mobile TV producers to track moving objects. These marked objects can be linked to additional information which appears when the user clicks on them. The additional information is packed with the video files in Material eXchange Format (MXF) and delivered as rich media content to the broadcasting center, where the signal is processed and aired. What ultimately arrives at the mobile receiver is a special MPEG-4 video containing both the main program and the interactive elements.

Source: Fraunhofer-Gesellschaft

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