Proposal of Value-added Service based on Real-time Automatic Content Recognition

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Abstract— **ACR (Automatic Contents Recognition) technology is a technology for automatically recognizing contents, and mainly recognizes contents using audio signal processing technology. The reason why ACR technology is necessary is to recognize the content currently being broadcast and provide an additional service suitable for it. Because of this necessity, internationally, ACR technology is selected as a standard in ATSC 3.0. In Korea, IBB (Integrated Broadcast and Broadband) service is included as domestic UHD broadcasting technology standard.**

In this paper, we describe the standard progress of ACR technology as domestic IBB standard and discuss why ACR technology is needed in actual broadcasting environment and future development direction. In particular, there is a limitation that the standardized part can only be provided by UHD TV. UHD TV Terrestrial broadcasting started in May 2017 based on ATSC 3.0 for the first time in the world. However, considering the domestic situation that more than 90% of users watch using set-top boxes, the number of households receiving UHD broadcasting directly is expected to be less than 10%.

In addition, UHD broadcasting can only use UHD TV purchased in 2017 to use additional information service using ACR technology. DTV broadcasting will continue until UHD 100% broadcasting will be available by 2027 because the average TV replacement cycle is about 10 years on average. Accordingly, the time to replace the TV with UHD TV is expected to take more than 10 years. In this paper, the technology and direction to solve these problems are proposed.

Keyword— **ACR, Audio, Fingerprint, 2nd Screen Service, Watermark**

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