



AUTOMATIC CONTENT RECOGNITION

CONNECT OFFLINE AND ONLINE

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With automatic content recognition (ACR), companies can simplify and expand their communication. By marking visual or audible signals, users can access additional information or interactive programs via respective apps. Fraunhofer SIT offers software solutions for ACR applications based on digital watermarks and fingerprints. The solutions developed by the institute set themselves apart through their high rate of accuracy with, at the same time, low response time. The institute offers a free trial version.

What is ACR?

The trend towards smart devices is ongoing – most people constantly carry their smartphones with them and the tablet is usually within arm's reach. As a result, broadcast providers, advertisers, and other content providers have the chance to utilize these mobile devices as an additional channel for the transfer of all types of content. This is possible with automatic content recognition (ACR): Via an app installed on users' tablet or smartphone, visual or audible signals are recognized, and the attached information is delivered to the mobile device. Through this, ACR builds the bridge between analogue media and the the digital world of the internet, making augmented reality possible. ACR technologies can be used in several areas: in radio, for quiz shows, all kinds of print products, company presentations at fairs, and many more.

ACR for Audio

Many people use their mobile devices while watching television. Via this second screen, the audience looks for additional information about the content shown on the first screen (TV screen), checks their emails, is active in social networks, and much more. ACR offers television viewers the opportunity to become active audience members. Examples of ways they can do this include:

- Participating in interactive television shows
- Answering live surveys
- Carrying on discussions about program-related content
- Considering job offers
- Receiving over the top content (OTT)
- Using video on demand
- Selecting virtual coupons
- Playing games that offer prizes
- Participating in e-commerce, m-commerce, and t-commerce
- Providing product reviews and critique
- Playing browser games related to the TV show

ACR for Visual Media

QR codes are on the packages, signs, flyers, etc. of many products. People who are interested in these products take a photo of the code with their mobile device to receive more information about the products. However, there is a definite disadvantage to this, because sometimes it is not possible to generate a QR code, for

example when a picture, an advertisement, or product catalogue is already on the market and should be augmented with information afterwards. With ACR, which uses fingerprinting as a basis, the picture itself becomes the QR code: Via an image-recognition solution, the motif is recognized and the respective information is made available on smartphones. Examples of applications include:

- Taking photographs of real estate that is for sale or rent, loads all information found online onto the smart device.
- The picture of a good in a catalogue results in product reviews or other photos and enables users to take advantage of special offers.
- Motifs on event posters, pictures in magazines, billboards, movie adverts, posters, or business cards provide additional information, navigate or offer the option to buy tickets in advance.

The Technology behind ACR

The technology enabling interaction between offline media and mobile devices is originally from the area of media security. Two different approaches allow multiple applications: passive fingerprints and digital watermarks.

Fingerprinting: Specific markers are derived from the media (pictures, television audio, etc.) in order to create an individual fingerprint. The app on the user's mobile device recognizes this fingerprint as soon as the respective media is recognized by the smart device, e.g. photographed, and directly loads the additional information from the internet. The fingerprint is very reliable. The advantage of fingerprinting technology is that it can also be used for content that has already been made public, e.g. for already existing billboards, posters, ...

Digital Watermarks: In contrast to fingerprints, the digital watermark is embedded into the content. The watermark is not perceptible and yet extremely reliable. The advantage of watermark technology is a higher level of flexibility. For example, different watermarks can be embedded into the same content so that different actions can be carried out at specific points in time.

ACR Offers Possibilities for

- Broadcasting stations (TV and Radio)
- Film production companies
- Marketing and advertising agencies
- Printers
- Company representatives and sales staff, e.g. at fairs
- Game developers

Our Offer

- Software development kit for Windows, Linux, Android, iOS and WindowsPhone 8
- Free test version
- Support, guidance and consulting