

A Highly Robust Audio Monitoring System for Radio Broadcasting in Sri Lanka

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Proposing a novel approach for monitoring songs for the radio broadcasting channels in Sri Lanka is very important for the interest of singers, writers and musicians in the musical industry. Singers, writers and musicians have a claim to the intellectual property rights for their songs broadcasted over all the radio channels. Therefore, we proposed a highly robust real time audio monitoring approach to solve this problem which includes our own audio recognition algorithm. It is easy to recognize a song, when you provide the original high quality blueprint of the song as input. However, we cannot expect such kind of audio input from radio channels since lots of transformations are possible before reaching the end user or listener. For example, adding environmental effects such as noise, adding commercials on the song as watermarks, playing more than one song as a chain without adding any silence between them, playing a part of the song, playing the same song in various speeds and so on. These transformations cause changes in the uniqueness of particular song and make the problem even more difficult. The algorithm we are proposing is resistant to noise and distortion as well as it is capable of recognizing short segment of a song when broadcasting over the radio channels. At the end of the processing, our system generates a descriptive report including every single detail e.g. the title, singer, composer, writer of the song etc.. Additionally, it monitors the number of times, and the exact time it was played for each song for a particular period for all radio broadcasting channels. We provide a highly robust audio monitoring approach for radio broadcasting as the solution for the proposed research problem. Our proposed approach achieved overall 96% accuracy in recognition of songs broadcast over radio channels. Thus, this system can successfully handle almost all real situations which occur in an actual radio broadcasting environment in Sri Lanka. Thus, we can conclude that our approach can be used to monitor radio broadcasting channels with high accuracy, high efficiency and low cost.

Key words: *Audio, Broadcast, Extraction, Features, Fingerprint.*