

EPG Intelligent Correction System

One of the most widely used services among broadcaster's audiences is Electronic Program Guide (EPG) system. Undoubtedly, accuracy of this system is one of the most important issues and challenges for audio and video content distributors. Mentioned project designed in order to increase accuracy and efficiency of such systems and as a result, effectiveness of them is provided intelligently and without human factors interferes.

« Basis of work »

Briefly, this system works on the basis of comparing and measuring of fingerprints' matching which was extracted from videos in archives and fingerprints received from antenna (TS) or network stream. Firstly, appropriate frames and spots that are robust to compression and adding noise to acceptable thresholds are selected. Required number of points from these points on the page, if there are any, which represent a feature vector of that frame are selected.

These vectors which pointing to specific frames of a video are stored in a NoSQL database in the form of series of text files.

By reading and dividing frames which was read from the antenna and sending it to function extractor in threads, simultaneously, trait vectors are calculated and compared and measured for compliance among the vectors in the bank.

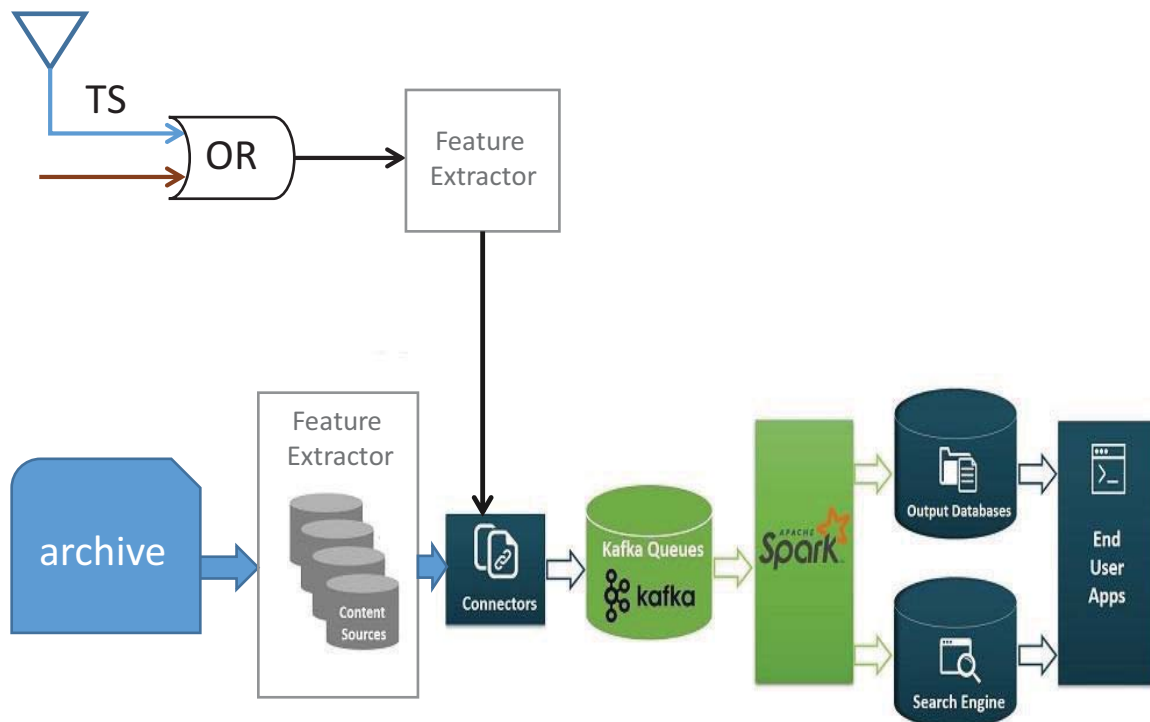
For this purpose, the vectors in the data bank, according to their structure, are categorized and indexed with a combination of Mixture Model and Euclidean distance and the vector extracted from the antenna is matched with other vectors, each by each, in its own class of vectors in the database. The highest compliance, regarding threshold, determines the output and, as a result, the type and frame number of the video.

« Practical Results »

This system is developed in C++ for feature extractor engine and Java for the search engine on Spark II; During a trial in IRIB, it has been performing well with over %98 accuracy. A maximum of %2 of the error occurs when randomly generating frames in two different videos that have a threshold similarity; Which, of course, would not happen in the continuation of video and next frames. Therefore, with a macroscopic examination resulting from the creation of a string obtained from a delay of a few minutes, a chromosome string can be created and unrelated frames can be replaced with correct frames. Also, using other data and available meta data in broadcast

department, this accuracy can approach to %100.

Whereas, the videos read from the antenna (TS) or network stream have an average of 800kbps, which sometimes means that compression is 50 to 70 times! And this is an indication of the power of feature extractor algorithm that is robust against this type of attacks.



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