

Vehicle Sound Recognition

Marius GHIURCĂU

Abstract

Sound Recognition has found widespread use in electronic applications. It implies recording of the sounds, extracting certain parameters and then classification using these parameters. The techniques used in the past for this process require large memory space and complex computations leading to an increase cost in production of the electronic devices. TESPAP (Time Encoded Signal Processing and Recognition) and archetypes technique is the proposed approach for a vehicle sound recognition system in this article. Tespar is not a new approach in the field of speech recognition but it is quite new in the vehicle sound recognition; its coding is based upon approximations to the locations of the real and complex zeros, derived from an analysis of the band-limited waveforms. The output stream of symbols from the Tespar coder can be easily converted into a variety of progressively informative fixed dimension Tespar matrixes. Tespar matrixes are ideally matched to the requirements of archetypes for which the used of fixed sized training vectors is typically essential. The archetypes are stored in databases and when a new sound sample appears, a live matrix is created and compared to each archetype in the database; the one that is the closest to the live matrix created is declared the “winner”.