Low Cost Real Time Robust Identification of Impulsive Signals

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Abstract : This paper describes an automated implementable system for impulsive signals detection and recognition. The system uses a Digital Signal Processing device for the detection and identification process. Here the system analyses the signals in real time in order to produce a particular response if needed. The system analyses the signals in real time in order to produce a specific output if needed. Detection is achieved through normalizing the inputs and comparing the read signals to a dynamic threshold and thus avoiding detections linked to loud or fluctuating environing noise. Identification is done through neuronal network algorithms. As a setup our system can receive signals to "learn" certain patterns. Through "learning" the system can recognize signals faster, inducing flexibility to new patterns similar to those known. Sound is captured through a simple jack input, and could be changed for an enhanced recording surface such as a wide-area recorder. Furthermore a communication module can be added to the apparatus to send alerts to another interface if needed.

Keywords : sound detection, impulsive signal, background noise, neural network

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