

Real-time pitch extraction of acoustical signals using windowing approach.

ABSTRACT

This paper presents a real-time signal processing technique based on a hardware interface using a microcontroller to process audio music signals for pitch extraction. A technique for transcribing music signals by extracting note parameters is described. The audio signal is divided to smaller sections known as windows to obtain samples of the signals for transcription. In general, two different approaches using static and dynamic window sizes to convert the voice samples for real-time processing are used. However, the transcription process involves complex calculations and in this paper we proposed a simple technique to estimate fundamental frequency of given sound signals. The transcribed data generated shows the feasibility of using microcontrollers for real-time MIDI generation hardware interface.

Keyword: Signal processing; MIDI; Microcontroller; Transcription; Pitch extraction.