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Abstract
Compared with traditional passive noise control, active noise control (ANC) takes the advantage of convenience under the environment of noise with low frequency band.
There are two different techniques of ANC, feedforward and feeback, depending on applications. The feedforward FXLMS algorithm is adopted in this paper. This algorithm is an alternative form of the LMS algorithm for use when there is with a transfer function in the secondary path following the adaptive filter. It estimates the initial environmental parameter of the system to reduce unnecessary parameter and to make the system more stable.
The proposed ANC system is powered by TMS320C6713 digital signal processor which provides real-time computations. The data acquisition unit, including amplifier, analog filter, DAC and ADC modules, is implemented into C6713 DSK. After that, the optimization turning is used to prove the feasibility of real noise cancellation. According to the simulation and experimental results, the proposed system can exactly reduce periodical and near-periodical noise in a sealed space with low frequency band.
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