

PROJECT:

Low Noise Cancellation

- Audio application that identifies bass frequencies which resonate the objects in the ambience and cancels the frequency that produces the highest noise.
- Divided into 2 parts i.e. training mode and playback mode.
- In the training mode audio tones in the range 20-120Hz, sampled at 48 kHz are played one by one via a 2.1 stereo system and simultaneously recorded by a microphone that captures noise along with the audio tone samples.
- The frequency that generates the highest noise is then determined.
- In the playback mode a tone containing the noise frequency is passed to the DSP via the inline input which filters it by selecting the respective notch filter coefficients by linear convolution and plays it back.
- Research project done as a part of coursework for Advanced Research in the Electrical Engineering under the guidance of Dr. Jason Losh.
- MATLAB and Audacity were extensively used to perform the research, tests and draw conclusions before the final implementation on the DSP.
- Extremely valuable project experience for my career as a Firmware Engineer.
- DSP: TMS320VC5509A.
- Implemented on a Spectrum Digital board: DSK5509A.
- Programming Languages: Embedded C.
- Softwares: MATLAB, Audacity.
- IDE: Code Composer v6.
- Protocols: I2C, McBSP.
- Independent project.

