

AIM: Perform any of the following operations on audio / speech / biomedical signals (EEG, ECG) using DSP concepts learned.

- (1) Analyse the frequency contents of the given signal using DSP.
- (2) Remove Noise from noisy signal.
- (3) Filter any signal (using FIR or IIR filter).

SOFTWARE: SPYDER Python 3.8.

THEORY:

(2) Removing Noise from noisy signal.

(1) Taking a signal that has noise present in it or take a noiseless signal and add noise to it.

(2) In the case we take ^{two} sin signal and make a function to add noise to any signal.

(3) We define sampling frequency cutoff frequency and no. of samples.

(4) We ~~create evenly spaced~~ apply notch filter to the noisy signal using signal.filtfilt.

(5) Plot notch-filtered version of signal.

(6) Plot notch filter and compute magnitude response

CONCLUSION :

A notch filter can be used to remove noise from a noisy signal.

Notch filter highly attenuates/eliminates a particular frequency component from input signal while leaving the amplitude of other frequencies more or less unchanged.