

SEES Project Design Report

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Glossary of Terms and Symbols

Binaural Audio	Stereo audio filtered with a Head Related Transfer Functions to generate spatialized audio that – when listened to with a pair of in-ear headphones – sounds to come from outside of the headphones.
CMOS	Complementary-symmetry metal-oxide-semiconductor. A circuit component used for digital imaging.
Discrete Fourier Transform (DFT)	A spectral representation of a signal that can be used to efficiently calculate signal convolutions.
Fast Fourier Transform (FFT)	An efficient algorithm used to compute the Discrete Fourier Transform and Inverse Discrete Fourier Transform of a signal.
Fastest Fourier Transform in the West (FFTW)	A optimized software library for computing DFTs developed by Matteo Frigo and Steven G. Johnson at the Massachusetts Institute of Technology.
Head Related Transfer Function (HRTF)	A transfer function that characterizes how a person's ear receives sounds from a position in space relative to the head. Filtering an audio signal by the HRTFs for the left and right ears will generate binaurally spatialized audio.
HRTF Profile	A collection of HRTFs that characterize audio spatialization for multiple points around a person's head.
Kinect	A motion sensing peripheral for PC, Xbox360, and XboxOne developed by Microsoft and designed by PrimeSense.
SEES	Spatial Echolocation Enhancement System – a system intended to act as a navigational aid for blind people that uses spatialized audio to naturally augment the user's ability to echolocate objects.
SEES Peripheral	The SEES sensing device for acquiring spatial information about the user's environment.
Time of Flight Depth Sensing (ToF)	A means of capturing distance data by measuring the time taken for an object, acoustic wave, or electromagnetic wave to travel through a medium.