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3	PhD Thesis Title	A study of the noise frequency components effects on the physiological parameters and development of a headset prototype for protection	
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7	<p><u>Brief synopsis</u></p> <p>The research work substantiated the importance of studying the contribution of noise frequencies in evaluating health effects and their association with physiological behavior within human body.</p> <p>The research project also describes the design of active noise control based headset prototype using DSP (TMS320C6713 DSK) and audio daughter board (DSK_AUDI04).</p> <p>The proposed setup implements FxLMS algorithm to reduce noise levels, The results of the experiments show a significant noise reduction of 21-29 dB for industrial noise samples, in the low frequency range (< 500 Hz), and 20-26 dB for tonal noise has been achieved. The feature of detection of abrupt sound is incorporated into the headset prototype by designing and implementing the "sliding overlapping window" method.</p> <p>The passive hearing protectors available are ineffective against these signals and can interfere with the perception of speech. This problem has also been solved by unmasking noise interference from speech using "zero crossing rates" and "sub-band energy detection" methods, recovering the desired speech signal from the noise.</p> <p>Thus, this proposed design of a DSP-based safety headset prototype system, for the industrial community, showed the best overall performance. It not only provides features of noise reduction but also detection and perception of abrupt sounds and speech signals for industrial applications.</p>		