Dipakkumar Mohanlal Patel, A Microcontroller based audiometer, M. Tech. Thesis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2002.

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Abstract **-** The degree of hearing loss can be determined by audiometry, which measures a person's hearing sensitivity. The instrument developed for carrying out such audiometric tests is known as audiometer. Using it, the test tones of different frequency and level are presented and hearing thresholds are determined on the basis of patient's response. A microcontroller based audiometer has been under development at IIT Bombay since 1997. The objective of the project is to study the work done so far and build a fully functional instrument by overcoming shortcomings in earlier prototype. A microcontroller based pure tone diagnostic audiometer is developed which operates over full frequency range (250 Hz to 8 kHz) and acoustic output level of 0 to 100 dB HL. It can also generate warble tone having 10% frequency deviation, and amplitude modulated tone with 5 dB modulation. It has a facility for speech audiometry. The instrument provides a broadband/narrow-band masking noise, with level selection. Facility of air and bone conduction is provided. All the controls are through a 4x4 membrane keypad and indications are using 16 characters x 2 lines LCD display. The instrument is menu driven and has option of manual and automated audiometry. At power on, it carries out a self test of the output levels. It has RS232 interface for downloading the test results to a computer.