

Anil Luthra, An Impedance Glottograph, M. Tech. Thesis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2004.

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Abstract - Impedance glottography measures the time variation of the degree of contact between the vibrating vocal folds during voice production. It is useful for estimation of voice pitch, diagnosis of voice disorders and as a speech training aid for the hearing impaired. The objective of this project is to develop an impedance glottograph instrument. It entails hardware and software development for signal acquisition, display and analysis. An instrument has been developed to pass a high frequency (400 kHz), low intensity (~ 1 mA) current through the central discs of a pair of electrodes held in contact with the skin across the thyroid cartilage. The impedance variations caused by varying contact area between the vocal folds results in amplitude modulated voltage waveform. This waveform is demodulated to get impedance glottogram. A Windows based application software has been developed to acquire the impedance glottogram along with the speech waveform through the stereo line input of the PC sound card, and plot the global pitch and pitch histograms.