

Babu P. Kuriakose, Impedance cardiograph, M. Tech. Thesis, Department of Biomedical Engineering, Indian Institute of Technology Bombay, 2000.

Supervisor(s): P. C. Pandey

Abstract - Impedance cardiography (ICG) is a non-invasive technique for measuring the impedance variation in the human thorax according to the changes in blood volume. This technique is used for estimation of cardiac output and diagnosis of cardiac disorders. The aim of this project is to develop an impedance cardiograph instrument. The instrument hardware extracts the physiological signal namely impedance signal $z(t)$, its derivative $dz(t)/dt$, basal impedance Z_0 and differentiated electrocardiogram $d(ECG)/dt$. To calibrate the ICG instrument, a thoracic impedance simulator has also been developed.

The work involved the testing and modification of circuits developed for ICG instrument, and development and implementation of a thoracic impedance simulator. Each instrument has been assembled as a single PCB and housed in a cabinet, with all the appropriate connectors and controls.