

Hardware Developments of an Ultrasonic Tomography Measurement System

Abstract

This research provides new technique in ultrasonic tomography by using ultrasonic transceivers instead of using separate transmitter-receiver pair. The numbers of sensors or transducers used to acquire data plays an important role to generate high resolution tomography images. The configuration of these sensors is a crucial factor in the efficiency of data acquisition. Instead of using common separated transmitter - receiver, an alternative approach has been taken to use dual functionality ultrasonic transceiver. A prototype design of sensor's jig that will hold 16 transceivers of 14.1mm has been design. Transmission-mode approach with fan beam technique has been used for sensing the flow of gas, liquid and solid. This paper also explains the circuitry designs for the Ultrasonic Tomography System.