

## **Optical tomography system using digital signal processor: Velocity profile measurement**

The DSP system was customised to control the data acquisition process of 16 x 16 optical sensors array, arranged in parallel beam projection. The data collected was used to reconstruct the cross sectional image of the pipeline conveyor. For image display purpose, the reconstructed image was sent to a personal computer via serial communication. By measuring the flow velocity at each pixel, a profile of flow velocity is obtained and termed as Velocity Profile. The method used to measure the flow velocity at each pixel by cross correlating the upstream pixel values with respective downstream pixel values or upstream sensor values with respective downstream sensor values. The algorithm to perform cross correlation is discussed.