

C415518 : MAJOR ELECTRICAL ENGINEERING.
KEY WORD: IMAGE SCANNER / CCD IMAGE SENSOR / METAL SHEET INSPECTION.

PORAMASTE JINUPUN : FLAT METAL SHEET IMAGE SCANNER.

THESIS ADVISOR : ASSOC.PROF.KRISADA VISAVATEERANON.

123 pp. ISBN 974-584-336-9

This thesis presents design and construction of a flat metal sheet image scanner, which is a major tool for automatic inspection of a punched metal sheet by using microcomputer. It can read the image of a metal sheet up to the maximum dimension of 1 X 2.4 X 0.03 meter. This machine utilizes linear image sensors for scanning image data along the width and uses a pulse motor driving a worm gear for moving the head assembly along the length of the metal sheet. By using 5 cameras, one scan line data can be composed of 20,000 pixels. The data compression technique in reducing the image data is the extraction of the edge position of holes along a scan line. Image data from 5 cameras are combined, compensated and calibrated by using a designed calibration program. The developed prototype has a maximum absolute accuracy of 0.6 mm and 508 dots per inch resolution. And the scanning time for a full size metal sheet is about 20 minutes.