ABSTRACT

Barcode is a composition of black and white line vertically with different width level. The number and level of thickness of line has different meaning and differentiates the type of barcode. Barcode provides an encoding method of text information that is simple and cheap. The text information that was decoded is in the form of specific data like production code, expired date, identity number, and others.

This final project describes the design of real-time barcode reader system based on digital image processing using webcam. Image is directly taken by using webcam that read barcode frames sequencially. If two of sequence barcode frames are same so barcode reader is done. The barcode image which taken is preprocessed. Then, the system do recognition process that read composition of bar and space that over scanline. From reading process, the system gets confidence value that determines of system confidence in reading barcode. Read barcode is shown on screen.

The designed system is tested for its performance level through several parameters like distance between barcode and webcame, rotation of barcode, friction of barcode and scratch barcode using 18's watt lamp and sun light. Using sun light have two position of light that are frontlight and backlight that using two kinds of webcam for online and offline system. Barcode that used are endoder barcode with three resolutions : 30 x 95, 60 x 190, dan 90 x 285.

The testing have shown good result. In distance parameter, the accuracy has been reached 100% accuracy. In barcode rotation parameter, the accuracy has shown 100% accuracy in 5° rotation. In friction barcode, the accuracy of system is 100% for 60 x 190 and 90 x 285 barcodes through online and offline system with that friction is less than 5° while the friction for 30 x 95 barcode just get the accuracy 30%. For the testing that using scratch barcode, the value of accuracy is not more than 50% for online system but it get 90% for offline system.

Keywords : barcode, webcam, real-time