SIDHARA NUALYAI : DEVELOPMENT OF THAI BARCODE AND DECODING THAI BARCODE PROGRAM. THESIS ADVISOR : ASSOC.PROF. SOMCHAI THAYANYONG   THESIS COADVISOR : ARCHAN NARONG WESNARAT. 90 pp. ISBN 974-636-010-8.

The goal of this thesis is to build a Thai barcoding and decoding system by using an interface card developed by the Institute of computer and information technology, King Mongkut's Institute of Technology North Bangkok.

Barcode is known as symbologies which consists of lines and spaces of varying width. Each bar is representing a binary 0 or 1 depending on the widths of the bars, a wide dark bar or a wide white bar is representing 1 and a narrow dark bar or a narrow white bar is representing 0. The resulting binary number represents a character or a number.

Since the present barcode systems are insufficient for using with Thai characters, a Thai barcoding system will be developed in this thesis. The thesis is devided into three parts :

1. Defining code for the Thai barcode system. Each code consists of eleven elements of binary numbers. Of these eleven elements, five elements contain the binary number 1. The black bars have three elements of 1 and three elements of 0, the white bars have two elements of 1 and three elements of 0. This Thai barcode system give the possibilities to encode 200 different alphabetic, numeric and graphic characters.

2. Defining the pattern for printing Thai barcode. Each code consist of six black bars and five white bars, making a total of eleven elements. The black bars have three wide bars and three narrow bars. The white bars have two wide bars and three narrow bars. The character 239 in the Thai barcode table is reserved for use as the start/stop code since this character is expected to be the least used.

3. Reading and decoding Thai barcode by using an interface card and a decoding program. The decoding program will get bit streams of 1 while the barcode reader is scanning through a black bar and it will get bit streams of 0 while it is scanning through a white bar. The decoding program counts the bits from each streams and compares it with the average number of each eleven bars. If the counted number of bits is equal or more than the average number, then the barcode reader is reading a wide bar and therefore resulting in a binary 1. If the counted number is less than the average number, then the reader is reading a narrow bar and therefore resulting in a binary 0. The decoding program must get eleven binary numbers for each ascii code in Thai barcode table and finally translate it into alphabetic, numberic or graphic characters.

The Thai barcode system has been tested by using 20 test samples of barcode. Scanned 700 times from left to right for each sample, the right rate of decoding is 99.01 % and scanned 500 times from right to left for each sample, the right rate of decoding is 98.73 %. The average right rate of decoding is 98.87 %

ภาควิชา......กสวงกรรมคอมพิวเตอร์.........   ลายมือชื่อนิสิต.....................

สาขาวิชา......วิทยาศาสตร์คอมพิวเตอร์......   ลายมือชื่ออาจารย์ที่ปรึกษา............

ปีการศึกษา.....2539.......   ลายมือชื่ออาจารย์ที่ปรึกษาร่วม............