Thesis Title The development of a Microprocessor controlled optical card reader.

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ABSTRACT

This study serveys current technology implemented in optical card readers (OCR). A microprocessor controlled optical card reader specifically designed for objective test was constructed. The study also surveys the response of the experienced users on the newly constructed OCR. It is an attempt to find posibility and trends in development of a locally made powerful OCR. It is expected to be able to construct an economical, easy to use and easy to maintainance locally-made OCR.

The constructed OCR was designed to be selfefficient, easy to use and requires no additional microcomputer as some imported OCR. It can be used anywhere in rural area where electricity is available and no computer expert needed. However, the constructed OCR can be interfaced to all microcomputers available in local market with minimal programming attempt.

The researcher designed the paper feeder, control circuit and developed the monitor program for the OCR. The design was based on locally available electronic components.

The newly constructed OCR was subjected to evaluation by 20 experienced users. They tested the OCR and evaluated it. The OCR then was subjected to a field-test by testing the objective test of one class of students from 7 schools and colleges. Later it was subjected to comparative test with the 3M Model 550/D - OCR.

The result of the research found that the newly constructed microprocessor-controlled OCR can correctly check the objective test paper according to the given key. It is satisfactorily easy and convenient to use with the satisfactory figure of the mean $\bar{X}$ equal to 3.5167 and the standard deviation of 0.5783. The evaluator were 20 technical teachers.

The comparative test with the 3M Model 550/D evaluated by 40 teachers from various schools and colleges in Amphor Maung, Nakornrajasima (Korat) province show that the t-test of the satisfactory figure and the indifferent figure in the operation of the two machines was at the level of signicicance for two-tailed test of 0.01.