

Automatic Answer Sheet Evaluation Using Efficient & Reliable OCR System

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ABSTRACT

In today's modern world when everything is computerized, the Evaluation process of assessing and measuring the educational system has become absolute necessity. Today, more emphasis is on objective exam which is preferred to analyze scores of the students due to the easy and less time consuming in the evaluation of objective answer-sheet in compare to the subjective answer-sheet. This paper proposes a new technique for generating scores of multiple-choice tests which are done by developing a technique that has software based approach with computer & scanner which is simple, efficient & reliable to all with minimal cost This paper is a discussion on a solution to evaluate the objective answer-sheet automatically by computer. Its main advantage is the ability to work with all available scanners of the market, In addition no special paper & color printing for marksheet. Optical character recognition technique is used here to recognize & allot scores to the response of the students.

Key words —Multiple Choice Questions, exams, Optical Character Recognition

I. INTRODUCTION

In today's global world, the multiple-choice questions have become an important phenomenon of academic system. Multiple-choice test is used in almost all important exam to judge the student's academic performance. Every year thousands of students take such tests in which they answer questions asked by highlighting the circles in OMR sheets. These exams conducting institutions uses a high complex machine for scoring MCQ paper, these machines are very costly and it needs a highly skilled worker who can manage such machine effectively. These institutes deploy costly OMR software along with complex equipment to analyze & provide scores to the OMR sheets. Thus, small organizations and training institutes cannot use such process of providing scores to such OMR Sheets. They use manual process of grading answer sheets. To check the OMR sheet test responses of a student takes couple of minutes. The importance of our small initiative is that we could build a computer based software that will save precious time by providing simple, cost effective, which is highly reliable & efficient by having a OCR approach.

We have a chance that our software might do the following activities:

- Examine the OMR answer sheet,

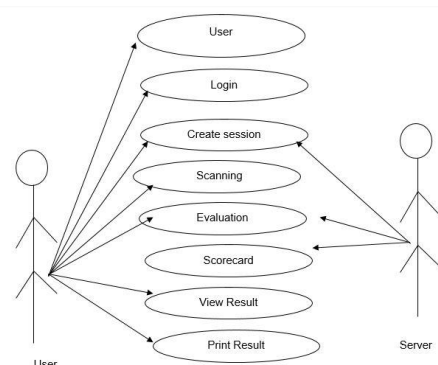
- detect feedback i.e. response for each question.
- Compare student answer with master key which will be already saved in database.

Thus, our idea is to develop a technique that can be used with computer & scanner with a software program that will provide scores to these uniquely designed MCQ exam test with questions having four choices for each question & the student can choose only one answer per question. The program will examine to detect the response of each question of the paper by matching with a correct answer which will be already saved in database the program will be a simple software with OpenCV to facilitate image processing

II. PROPOSED SYSTEM

The program will be used a simple software tool such as OpenCV which is a software application that facilities to computer programmers for software development all these will have simple interface that would be understandable to all. At the end of the test, the candidate will total the selected choices for questions and the test result can then be obtained by inputting the total choice value in a simple spreadsheet program. The spreadsheet program was written specifically to decode that number and indicate the number of correct answers.

Software uses the technology of optical reading by scanner. It contains three main elements: the software, the answer sheets created by it, and a high-volume scanner. Depending on the scanner used, this tool allows you to process thousands of answer sheets per day. The use of Software is to create and grade your exams. Equipped with a user-friendly and practical exam-creation wizard, Software enables you to create multiple-choice exams in a few mouse clicks. With its answer-sheet creation function, its question-weighting module and its automatic importing of candidate lists (among many other features),



III. SYSTEM DESIGN

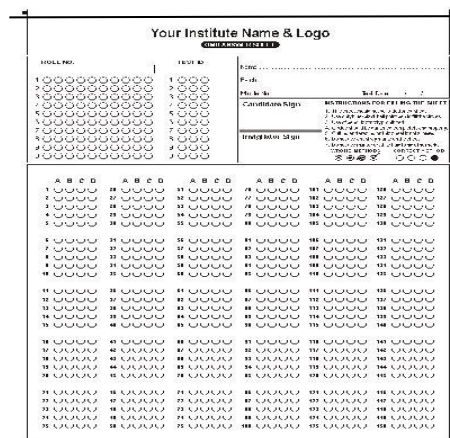
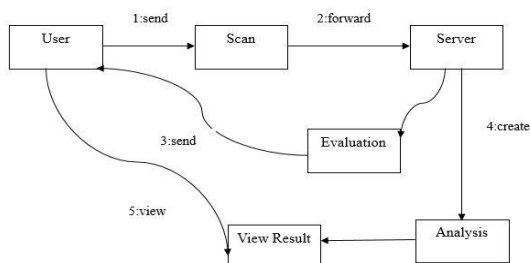


Fig. Answer Sheet Format

A OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products. OpenCV makes it easy for businesses to utilize and modify the code. Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs for Microsoft Windows, as well as web sites, web applications and web services. OpenCV (Open Source Computer Vision) IDE is a library of programming functions mainly aimed at real-time computer vision. The library is cross-platform and free for use under the open-source BSD license. C# (pronounced as see sharp) is a multi-paradigm programming language encompassing strong typing, imperative, declarative, functional, generic, object-oriented (class-based), and component-oriented programming disciplines. It has C++, C, Python, Java and MATLAB interfaces. SQL (Structured Query Language) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS).

B. ELEMENTS OF THE SYSTEM SCANNER



Fig. Scanner

ANSWER SHEET

The answer sheet is made up of two components: a title section, for recognition of the exam and the candidate details, and a response answer sheet, for the candidate's answers to the questions. The personnel-identification section appears on the upper part of the answer sheet. It serves to identify the exam candidate. Different types of personal-identification templates can be used with it. Depending on the template, one can insert text boxes for surname and given name, date of birth and a candidate seat no.

IV. Ease of use

- Our system requires regular scanner, which has a very low price.
- Our system requires very less storage space
- Size of file is also low.
- It is simple, efficient & reliable.
- It removes the challenge to use only pencil, it can use pen etc. for marking the response.
- The processing speed is fast.
- Black & white printer is only mandate requirement for printing answer sheet.

V. FUTURE SCOPE

- Education institute can track the academic performance of students which can be done in less time.
- The Feedback process for staff can also be evaluated in various institutions.
- Increase the number of question & question paper sets in the paper.
- It can also be implemented at micro level in administration of government & private sectors for

feedback, so that it will help in betterment of organization.

VI. CONCLUSION

Thus, it's a very simple & lower cost idea, our proposed system used with scanner to capture answer from OMR answer sheets rather than costly OMR (Optical Mark Reader) system. The system demonstrates that the software program tool is dynamic and efficient but also effective hence it addresses the issues such as formulating different types of objective questions, keeping candidate profiles, provide scores to individual performance of the student.

Automatic paper correction of questions has a definite role to play in pc-based evaluating systems. Some of the notable benefits of the system are traditional question based evaluation, better scalability, suitability for evaluation. Finally, the algorithm that will take care of responses to the same question and thereby provide feedback is being proposed which is simple and can be implemented easily

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