

# Digital Paper Evaluation and Analysis with Barcode Integration

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**Abstract**— Digitalized paper Evaluation system which overcomes the drawbacks of manual evaluation system as well as existing digitalized paper evaluation system. The aim is to automate the entire process of examination assessment by enabling correction on PC using both online or offline mode. Security is enhanced by applying cryptographic techniques thereby avoiding the leakage of confidential data of answer sheets and prevents the manipulation of critical data involved in the process. Also the other manual processes related to the paper evaluation such as exam form submission, apply for rechecking, apply for KT form are also done quickly as we use digitalized approach This system not just evaluate the student, it analyze students all previous data and give the career recommendations.

**Key words:** Barcode Technology, Barcode Generation, Barcode Symologies, Code-128, Barcode Reorganization, wpf, SQL Server, android

## I. INTRODUCTION

Traditional exam paper evaluation system has been practiced to measure the level of understanding of the students in their subjects. It has been indicator to judge the student's knowledge. Traditional exam paper evaluation system involves lots of human effort and consumes adequate time in assessing them and also there are challenges in storing and maintaining the huge records. Alternate to this system is the Digital Paper Evaluation System. The many functionalities are related to evaluation are still missed by the existing digital evaluation systems and done manually as it reflected in time consuming activity. For the quick access of photocopies and revaluation results our system provides integration of android application for students as it easily available to student. Proposed System approaches the direct interaction with students for giving quick result of assessment. The management on the other hand can have a relief of tedious routine management and can generate result more efficiently and faster. Thota Sriram, discussed in paper [1] that the applications of barcode technology in data storage and retrieval systems

## II. LITERATURE SURVEY

Firstly all the answer sheets along with supplements get scanned and converted into digital answer sheets. After that all the digital answer sheets get uploaded on the special server. When the actual evaluation process starts each examiner gets login credentials to login into the answer sheet evaluation software. At morning examiner can claim for answer sheet allotment. There are some conditions for allotment. Examiner can only claim for less than 30 or 30 answer sheets at a single time. If the answer sheets which are claimed by examiner will not get checked in one day then those answer sheets are again get stored back to the server and not accessible for examiner. The application has two parts. In first part digital answer sheet appears and the

second one in which the marks are entered according to the question numbers. If any question is not attempted by the student then it mark that question number as not attempted. If any extra question was solved by student system will consider maximum marks. This system also provides the calculation of total marks. Firstly all the answer sheets along with supplements get scanned and converted into digital answer sheets. After that all the digital answer sheets get uploaded on the special server.

If there is no internet connection then this application will not works. As internet connection goes down then the time required for evaluation of answer sheet will increases. This is a Digitalized system but still much functionality are done manually such as submitting exam form, KT exam form, apply for revaluation and photocopies which requires lot of time and human efforts. The process of displaying result takes lots of time, in the condition of revaluation case the updated result may declare after the KT exam. Time required for getting the photocopies was more and also student need to pay some amount for photocopies. The students are not directly interacted with the evaluation system they didn't get any direct output at their end.

### A. Problem Statement

Digital Paper Evaluation and Analysis with Barcode Integration (DPEA-BI) provides the quick digitalised student evaluation on the basis of his/her academic progress and it reduces the tolerance in the paper evaluation and result generation process.

## III. IMPLEMENTED SYSTEM

### A. College:

In the collage, clerk of the examination department will have software which has barcode integration. Whenever student comes for filling semester exam form, KT exam form, application for revaluation or for photocopies then identity of the student will be recognized by barcode on the ID of the student. Clerk has all academic record of every student, by using that data clerk will able to submit the semester exam form, KT exam form, application for revaluation or application of photocopies quickly without interacting with main server. Examiner have separate software for evaluation of exam paper send by university. This approach increase the paper evaluation transparency.

### B. University:

In the university all the papers will get collected. Then the scanning procedure is implemented for converting the answer sheets into the Digital answer sheets. Also the college registration is done for integration the colleges into the digitalized evaluation system. Barcode generation is done which are required for identification of exam paper. System displays the results, view the generated reports, analysis of examiner, generation of exam paper checking payment slip for examiners. All the notifications regarding exam are given by university to colleges and students.

C. System:

Random password generation will be done by system which are provided to examiner to get access of the software and also for the student to get logged into the android application. The task such as result generation, report generation, progress graph generation and payment calculation also done by internal system.

D. Student:

DPEA-BI DPEA-BI uses the highly using mobile technology called as android which is mostly used by the students and it is easily available in less cost. At the student ends he/she can view the semester exam result in detail along with mark sheet. In reevaluation student will able to see the status of the reevaluation process and student will get reevaluation result on the application. Also the applied photocopies can be applied and viewed directly by the student on the application. Student is able to see its own academic progress graph, notifications from university and domain recommendation on the academic record.

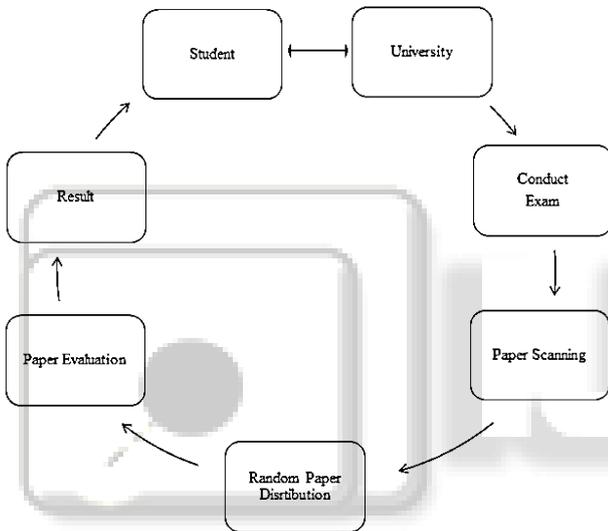


Fig. 1: Implemented System Flow

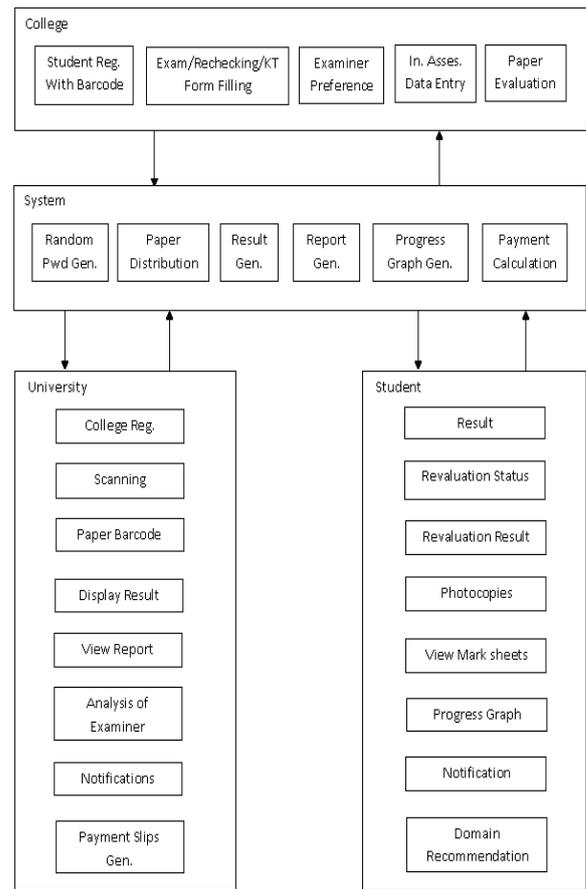


Fig. 2: Architecture of Implemented System

E. Advantages and Limitations:

1) Advantages:

- Time required for submitting the exam/KT exam/revaluation form will get reduced due to proposed system.
- If there is no internet connection available then also examiner can assess the answer sheets.
- Using this system student can check reevaluation status of his/her answer sheet and student will get his/her result quickly after completion of evaluation of answer sheet.
- Any module will able to store the current data to local database in the situation of improper internet connection. Synchronized to global database or database server.
- Proposed system introduces interaction of barcode scanner which reduce the human interaction so it reflects as more accurate system and time efficient system.

2) Limitations:

- In proposed system, no any automated payment related functionalities.

F. Used Technologies:

- Barcode Generation Technique-Code128 Symbologies  
This algorithm extract particular information related to student or exam and converts it into the barcode lines format.
- Barcode Recognizing Model

This algorithm accepts input from barcode reader, process the barcode lines and determine the hidden details.

- WPF-C#

WPF is stands for Windows Presentation Foundation which is used to make GUI framework. WPF is a newer so it is more in tune with current standard. WPF is more flexible. WPF allow to make user interfaces for windows application as well as web application. WPF is a graphical subsystem. WPF provides a consistent programming model for building application. It can be deployed as standalone desktop programs or hosted as an embedded object in website.

- SQL Server 2012

Server SQL Server (version 2012) is used for relational database management .This database server has primary functionalities of storing and retrieving of data as requested by other software applications which may run either on the same computer or on the computer across a network. There are different versions of SQL Server. We are using SQL Server 2012 for implemented system.

- Android

Android is mobile OS developed by Google. It is an open source technology. Basically is designed for touchscreen devices. Direct manipulation method is used for the interface. We used this technology for developing android application for students to view information.

#### System Outcomes



Fig. 3: Student's barcode

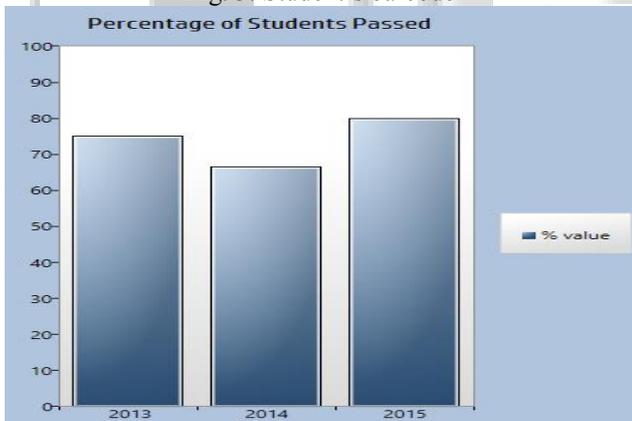


Fig. 4: Passed student statistics

#### IV. CONCLUSION

Many manual functionalities of the exam department of the colleges are done quickly as it uses the student's unique barcode for student identification. It reduces the time required for the data communication as well as rate of human errors. DPEA-BI reduces the complexity and required time for the paper evaluation and it processes the result as early as possible. It analyses the student as well as examiner's data to maximize the accuracy of evaluation process. Using DPEA-BI, Student can able to get the all previous academic details and statistics related to his/her progress. Student can get quick result of examination and applied photocopies.

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