An Optimization Approach to Examination Information System (EIS) using Mobile Computing

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Abstract - **Examinations are an integral part of teaching and learning process which determines the student's destiny. Researcher focus on the information system of examination using mobile computing and its supportive components. This research study is an approach to optimize to reduce the time, efforts and complexity of examination scheduling process.**

Keywords – **automated, EIS, mobile computing, notification, optimization.**

I. INTRODUCTION

Examination is an instrument to evaluate the quality and quantity of the student knowledge. It is the basic requirement of an education system. The increase in student enrollment into university, and the great increase in flexibility in choices of course have made examination scheduling task very difficult to handle.

Examinations are conducted for each stage at the end of each semester. There is hardly any month for which there is no examination. Continuation in the examination causes physical and mental stress both for students as well as for examination committee members.

A lot of task are required in order to organize an examination such as prepare the timetable, make a duty chart of the faculty, exam centers and room allocation, remuneration of supervision, submission and moderation of papers, display result etc.

A. Task Done During Exam Time

- *Prepare and Circulate Time Table*
  As per the requirement and the constraints the time table is depends upon subject, semesters with different courses, date and time slots. Preparing the time table is very difficult task for exam scheduler. When preparing the time table two exams are not scheduled at the same day. The main objective in the examination timetabling problem is no student appears more than one examination at any time period.

- *Prepare And Circulate the Notices*
  Admin prepare a notices related to important examination dates like submission of paper set, paper assessment, moderation etc. They are responsible to circulate those notices to each faculty at the right time.

- *Faculty Duty Chart*
  The numbers of duties are allocated to each faculty on different days during the exam. Day wise duty is allocated to faculty. More than one duty is not allocated at the same day. The paper assessment and moderation duty is also assigned to faculty.

- *Exam Class Room Allocation*
  Depend on the total number of examination centers in the university and their capacity the students seating arrangement chart is prepared. The seating arrangement char is send to particular exam center. As per number of students each exam center will see the availability of an exam rooms and allocate them to a subject examination on schedule date and time. Faculty is also allocated to that particular exam room.

- *Faculty Remuneration*
  Faculties prepare their remuneration forms as per total number of duties done, number of sets of paper, total paper correction, internal assessment etc.

- *Result Announcement*
  After completion of all assessment and moderation work the result will be announced by Exam admin.

B. Responsibilities during Examination
  Administrator
  Prepare examination timetable
  Create and circulate exam notices
  Make faculty duty chart
  Generate and display the examination block arrangement
  Display result
  Faculty
  Follow up duty chart during examination
  Paper assessment and submission
  Student
  Follow up the examination timetable
  Confirm date, time and venue of exam
  See the result of examination

C. Problems Arise During Exam Conduction
- No student can be assigned to more than one exam in the same time period. Examinations that are taking place in the same time period should have equal durations.

- Examination timetable display on Notice board is difficult to read because of overcrowd of students.
- Try to find examination room according to seating arrangement is very difficult task for a student
- Faculty should remember their duty days and carry chart with them every time.
- Sometimes the notices of important examination dates will not circulate properly to each faculty.
- The seating arrangement of students for examinations should not be more than the available exam room capacity in the same period.
- After completion of examination work faculty fill up the remuneration form manually and submit it to the exam administrator.

II. LITERATURE REVIEW

Jhon Harmen (2010) reviews the evidence of the role of mobile phones providing them learning to improve the educational outcomes. Fagbola Temitayo (2013) developed computer based examination process and manages challenges faced during the examination period such as conduction of examination, auto submission, auto marking, result etc. General examination scheduling problems analyzes by the Danlami Muktar (2014) and implements Decision Making System to solve the problem. S.S. Aravinth (2014) implements exam hall seating arrangement system which helps to identify the floor or get direction to their respective halls without delay. Android application implemented by Tanvi Jadhav (2015) which is helpful for student to record all upcoming lectures, assignments, projects, exams, journals etc. and also share notes that were given by the professors. Suraj Sharma (2015) study the faculty allotment in the university and send the email to each faulty about their respective allotment center and date. Ravina H. Popli(2016) develop android system for college which contain online study material, notices, training and placement cells etc.

III. PROPOSE RESEARCH STATEMENT AND PROBLEM

To promptly deliver the examination information system is one of the significant issues in the university and colleges to the students and professors.

The researcher given a propose model using mobile computing to optimize the services of transferring the information system to the real world.
1. Optimization approach of examination information system.
2. Complexity of examination information system.
3. Mobile computing service to the examination information system.

IV. PROPOSE CONCEPTUAL FRAMEWORK OF RESEARCH

By using mobile mechanism a system can be developed to overcome all the above problems faced by exam administrator, faculty as well as students. The admin prepare an examination timetable by following all complex criteria. Admin upload that timetable on mobile system. All students and faculties can view timetable from anywhere anytime

Exam admin will display examination seating arrangement on the mobile system. Because of this Student can easily know their examination seating room. This helps them to identify the floor and examination room.

Admin prepare faculty duty chart and display it on a mobile system. They can change a duty by sending a request to the admin through this system with proper reason. Admin will give the response back to faculty. The paper assessment and moderation duties are also display on system.

Faculty downloads remuneration forms and fills up all the details in the form, and sends back to admin. Intimations of all important examination dates will send on faculty mobile.

Students will get an intimation of examination result announcement date as well as see their examination result.
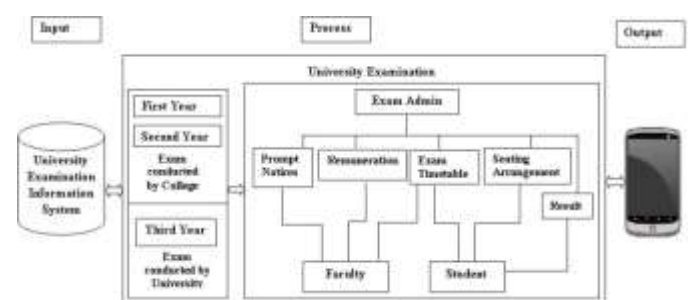

Fig. 1 Conceptual framework of examination information system

V. RESEARCH DESIGN AND METHODOLOGY

A. Algorithm

Circulation of Notices
Step 1: Start
Step 2: Admin send the intimation of notices to faculty
Step 3: Faculty view the notices
Step 4: Faculty download notices
Step 5: Stop

Sending Duty Charts
Step 1: Start
Step 2: Admin send the duty Chart to faculty
Step 3: Faculty view the duty chart
Step 4: If any change in duty chart then
Step I: faculty send request to the admin
        Step II: If approve by admin then
Step i: Admin resend updated duty chart
Step ii: Faculty view updated duty chart
        Step iii: Goto step 5
        Step III: else
            Step i: Goto step 5
Step 5: Faculty download duty chart
Step 6: Stop

Remuneration Form
Step 1: Start
Step 2: Admin send the remuneration form
Step 3: Faculty download the remuneration form
Step 4: Faculty fill up the form send to admin
Step 5: Stop

Timetable Circulation
Step 1: Start
Step 2: Admin Upload the University Exam Timetable
Step 3: Admin Send intimation to student and faculty
Step 4: Student and Faculty select the stream
Step 5: Display timetable of selected stream
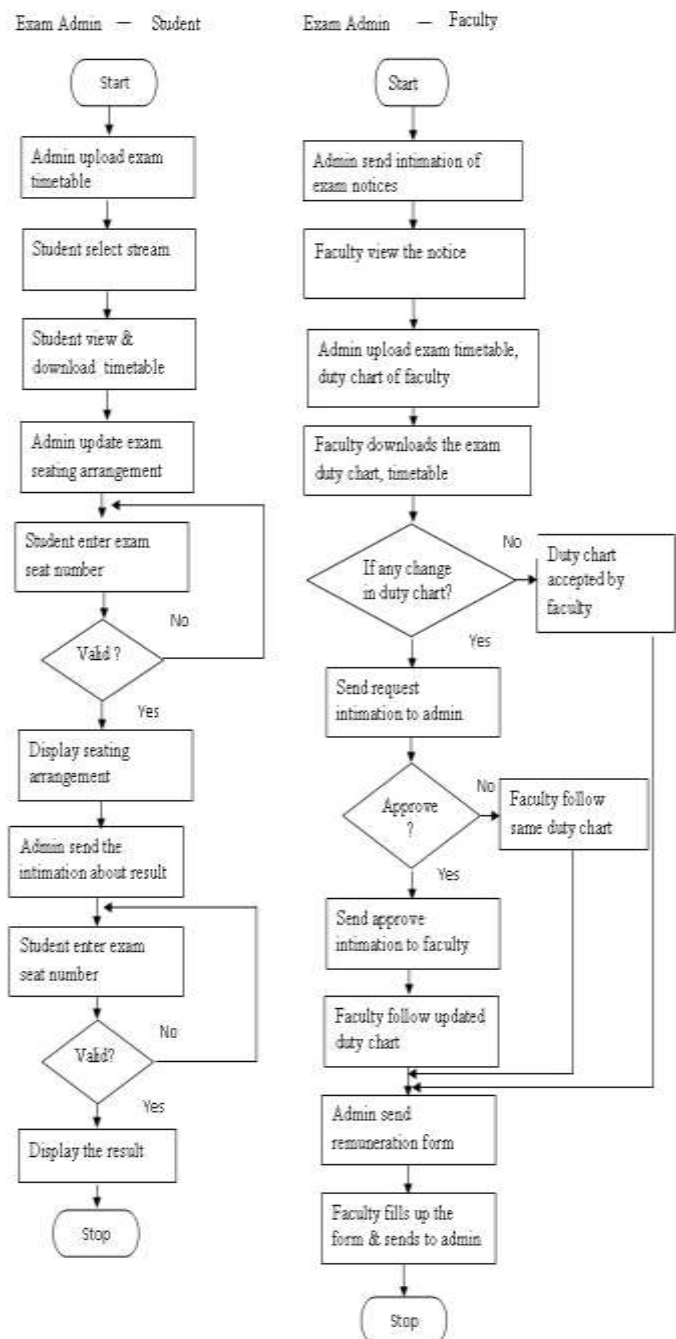Step 6: Stop

Display Seating Arrangement
Step 1: Start
Step 2: Admin Upload the Exam seating arrangement chart
Step 3: Student enter examination seat number
Step 4: If Seat No is valid then
Step 5: Display seating arrangement details
Step 6: Else go to step 3
Step 7: Stop

Examination Result Announcement
Step 1: Start
Step 2: Admin upload the examination results
Step 3: Admin send intimation to all student
Step 4: Student enter examination seat number
Step 5: If Seat No is valid then
Step 6: Display the result of student
Step 7: Else go to step 4
Step 8: Stop

B. Proposed Design

Proposed mobile mechanism reduces the work load of exam admin as well as faculty. The exam admin display the examination timetable, seating arrangement, important notices related to examination, faculty duty chart and results. The faculty can view the duty chart and if changes are required then send the request to admin. Admin give intimations of approval to faculty. Faculty also view the notices send by admin. Faculty can submit the remuneration form. The students can view the examination timetable, seating arrangement of exam room as well as result.

Fig.2 System flow chart for examination information system

C. Significance of Research

The system is easily accessible by all members of examination system.
This research reduces the time limitation.
This system improves the work efficiency.
This system provide flexibility, reliability and operability

VI. CONCLUSION

This research paper focuses on the issues face by all examination factors of institute during examination period, reduces the paper work and use technology support in the examination scheduling. This research minimizes the

workload of exam admin as well as reduces the time for implementation of examination work. The system is easily accessible by all members of examination system. It is easily noticeable, prompt responsible for students and faculty. This research reduces the time limitation. This system improves the work efficiency. It reduces the student stress during result announcement.

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