

Enterprise System Automation Technology : E-SAT

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Abstract — In a Engineering College there are various departments and each department handles all student information and department database. Current System of department is having problems i.e it does not fulfilled all the requirement of departments and also problem of interlinking and data duplication. To rise above these problems we present Department ERP system which is computerized and central. This system have easy user interface and have powerful data managing system which makes this system very helpful. Main objective of this system is to design and develop a software portal for engineering colleges departments for maintaining student's attendance record, student's internal and external marks managing system, lecture details, faculty details, and course details. Students will use this system from using their login id and password to know about details on attendance and marks and communicate with respectable members for doubts. Parents also view their child daily performance record, attendance record, internal and external examination marks through SMS which is sent by class teacher. Latest data on marks and department data are modified or updated by the administrator which is available for lecturers and students. This System should support multi-user environment. System should be fully automatic and computerized. This System should provide concrete security features like creating users and assigning rights to users of the system.

Keywords — User Authentication, ERP System, User Friendliness, System Validation, Student Module.

I. INTRODUCTION

Enterprise System Automation Technology (E-SAT) is a department ERP desktop application is the one kind of desktop application which integrates the entire module and functionalities of department system on a particular system that can be handled by the administrative means head of department and access by the students and faculties with valid email id and password.

As we know that, a college consists of different departments and each department do our daily work such as to maintain student attendance record, to maintain all the personal, health and achievement details or information of student, and also to keep all the internal or external examination marks details etc. In the current system these all the activities maintain and store manually.

Nowadays to manage or handle those activities manually it is difficult and also lots of paper is required or used so to overcome this problem we develop this desktop application i.e Enterprise System Automation Technology (E-SAT).

Enterprise System Automation Technology (E-SAT) is being develop to fulfilled all the needs and requirements at department level. It is integrated with all departments' daily activities. It is Intranet based system that facilitates the running of all activities of department. The user login in the system with login id and password after the approval of Administrator. Users are those who interact with the system.

The system utilize user verification, display only information necessary for an individual's duties. Additionally, each sub-system has confirmation allowing authorized users to create or renew information in that subsystem. All data is stored securely on SQL servers managed by the department administrator and ensures a highest possible level of security.

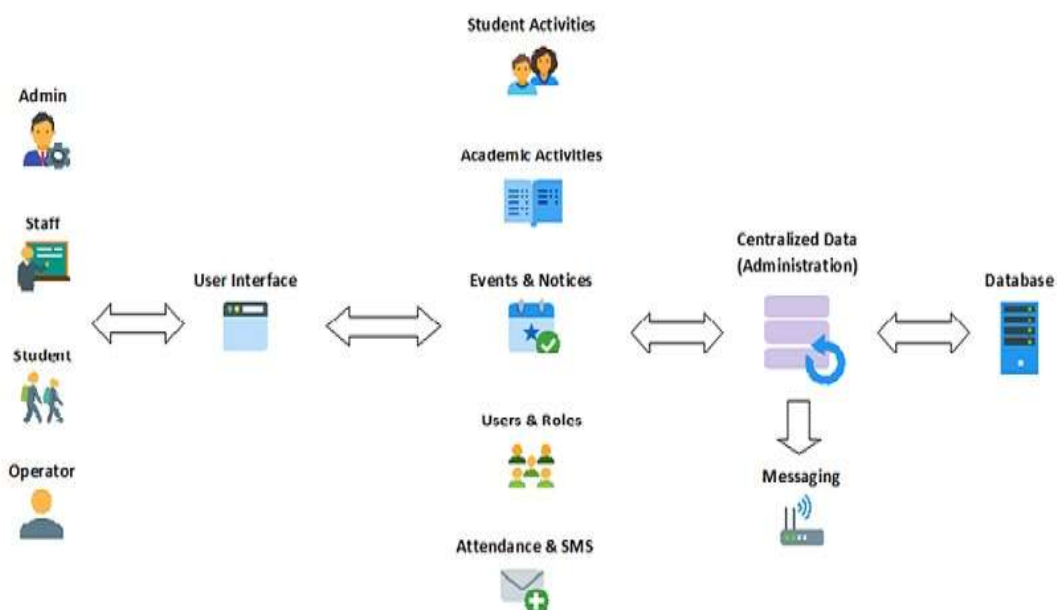
The main objective of the entire system is to provide a user-friendly interface and powerful data system which make this system more useful[1]. The Enterprise System Automation Technology (E-SAT) ERP system computerizes all the details or necessary information /records of the department system which are updated by admin only can access by the students and faculties. ERP on department management system reduce the most of the human being work that are done earlier to managing the department system. Once the details are entered into the system by the approved person then there is no need for other user to deal with separate section. Only a

individual that is having an administrative approval is enough to maintain all the information and report of the system. The protection/security can also be provided as per the requirements. The main thing is that our system reduces the human being works at a great effort [1].

It can be helpful such that

- Records are always updated.
- Manpower is decreased or reduced.
- Large amount of data as regards department and their modules can be stored.
- Accurate and perfect calculations are made.
- Maintenance of file is efficient and flexible [1].

II. RELATED WORK



In this architecture shows, How does the E-SAT System work.

A. ADMIN:

Administrator can Control to handle whole E-SAT System and Authenticate data or information also manage the database. Whenever the admin module is important because without administrator approval student staff and operator can't Login the system or invalid for registration. Purpose of that is unauthorized person cannot login or used these system. Before approve the student or staff the admin can check their information, whenever he decide the student or staff can't login the system then admin can block or unblock it. The Admin are managing to access the student information, staff information, assign the roles, and add events & notices. Admin is the Central Processing System [2].

ADMIN WORKFLOW:

Step 1: Start

Step 2: Login by Admin

Step 3: Display Menu- Student Performance, Teacher Progress, Roles and Responsibilities.

Step 4:

4.1: if (student performance)

Display menu - personal information / Attendance academic records

If (personal information)

- Fetch and display information
- Else if (attendance)
 - Fetch and display date wise attendance
 - Fetch and display subject wise monthly attendance
 - Generate attendance report
- Else
 - Fetch and display academic details
- 4.2: if (teacher progress)
 - Fetch and display teacher information
 - View notes and assignment and its progress
 - View personal time tables
- 4.3: if (events / notes)
 - View events / notes
 - Approve events/ notes
- 4.4: if (roles and responsibilities)
 - Check user status
 - Approve / Reject user
 - Assign responsibility to the staff user
- Step 5: Stop

B. TEACHER/STAFF:

Staff members are registered by administrator and login details are generated by administrator. After that the list of staff can be approved by admin. Whenever the admin can assign the class teacher, subject wise teacher can be assign[2]. And then the staff can used to upload the daily/monthly attendance notes, assignment, subject related materials, any references, event and notices, sports related information's and other activity records. If the staff can add the marks of unit test, prelim exam, online exam etc. The main things of that system are staff can send the student academic progress report, Marks and attendance report via SMS to the parents [2].

TEACHER WORKFLOW:

- Step 1: Start
- Step 2: Login by staff / teacher
- Step 3: Display menu to teachers
- Step 4: If (view)
 - Display student info.
 - If (add)
 - Insert new records (academic details)
 - If (update)
 - Update existing academic records
- Step 5: If (attendance)
 - add date wise attendance entries
 - view previous attendance entries
 - check attendance status
 - generate attendance report
- ¶ Step 6: If (upload)
 - upload notes according to subject
 - upload assignments to batch wise
- Step 7: If (time-table)
 - view departmental time table
 - generate personal time table
- Step 8: Stop

C. STUDENT:

Student members are registered by administrator and login details are generated by administrator. After that the list of student can be approved by admin [2]. Then the student can used to access or view their Attendance, marks, Time Table, Personal details and academic details, events and notices, sport related

information, Fetch academic details such as TW, PR, OR, Tests, final marks etc. When the student can interaction with respective subject teacher for any doubt or query of related subject [2].

STUDENT WORKFLOW:

Step 1: Start

Step 2: Display Menu to the Student

- View Information, View Attendance, View Notes and Assignments.

Step 3:

3.1: if (View Information)

- Fetch basic information from Database and Display

3.2: if (View Attendance)

- Then Display menu

(Daily Attendance/ Monthly Attendance/ Overall Attendance)

If (Daily Attendance)

- Fetch attendance details according to given Data.

Else if (Monthly Attendance)

- Fetch attendance details according to given Month.

Else

- Fetch overall attendance

- Prepare attendance report and display it to the Student

3.3: if (View notes. attendance) then

- Display Menu notes, assignment

If (View Notes)

- Fetch notes according to selected Subject

Else

- Fetch assignment according to Subject

3.4: if (View Academic) then

- Fetch academic details such as TW, PR, OR, Tests, Final Marks and Display

Step 4: Display Menu Notice Events

If (Notice Event)

- Fetch notices/Events and Display

Step 5: Stop

D. OPERATOR:

If any of the teachers is not available in the collage then that time teacher can approve the operator to do all the work of Teacher. Operator can use to fill the appropriate record whenever student can't fill their correct information. And the main role of operator is that after taking student provisional list by student section operator can upload thus list for the approval of admin.

OPERATOR WORKFLOW:

Step 1: Start

Step 2: Login by operator

Step 3: Display menu Upload/Add/Reports

Step 4: If (Upload)

- prepare and upload events
- prepare and upload notices
- edit/update events/notices

Step 5: If (Add)

- Add course info
- Add departmental info
- Add tasks assigned by admin/teachers

Step 6: If (Reports)

- Generate attendance reports
(Daily/monthly/overall)
- Generate performance reports

Step 7: Stop

III.METHODOLOGY

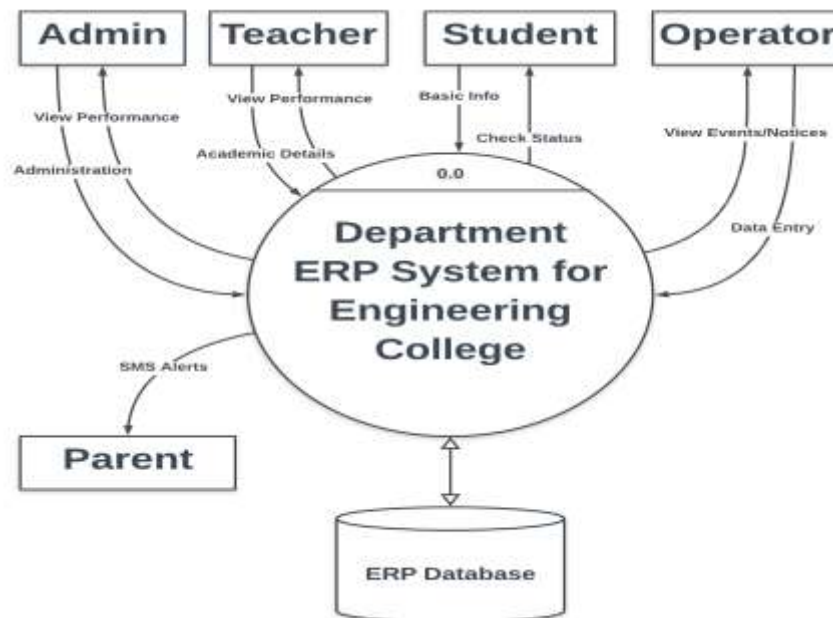


Fig: Data Flow Diagram

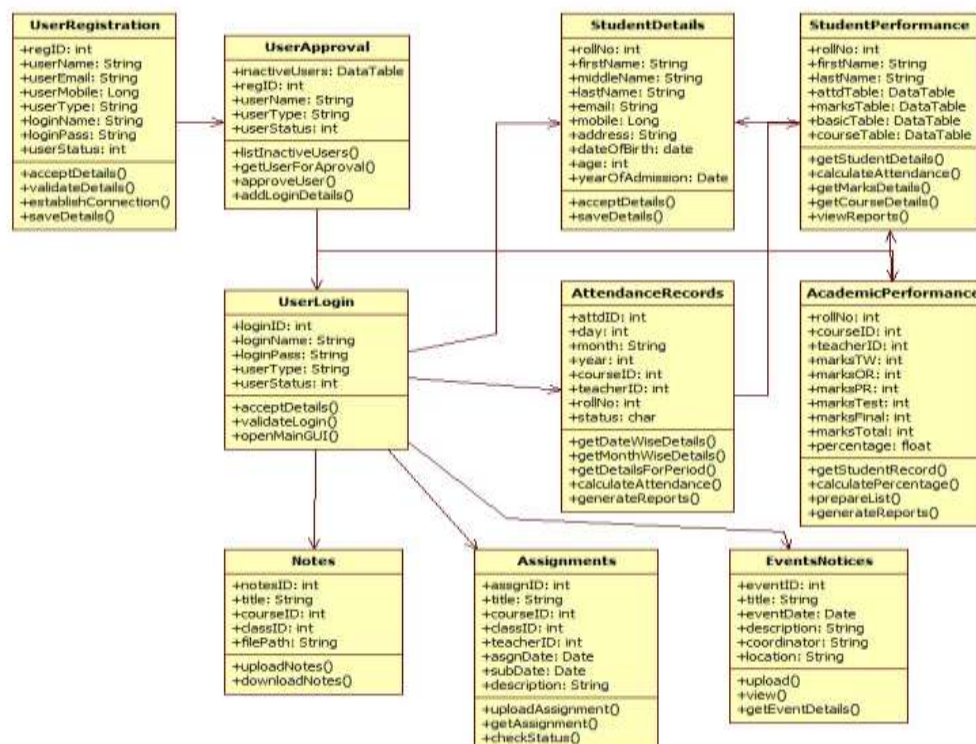


Fig: Class Diagram

IV.RESULT AND DISSCUSSION

Server Side:

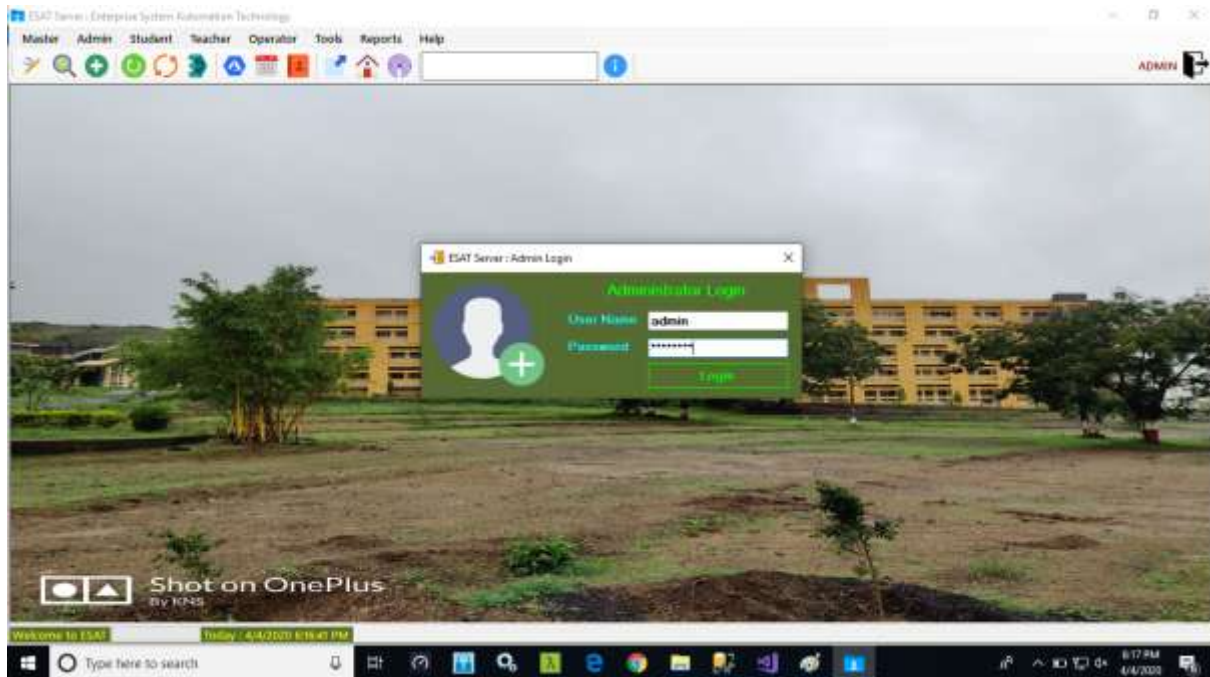


Fig: Admin/Server Side Login Page

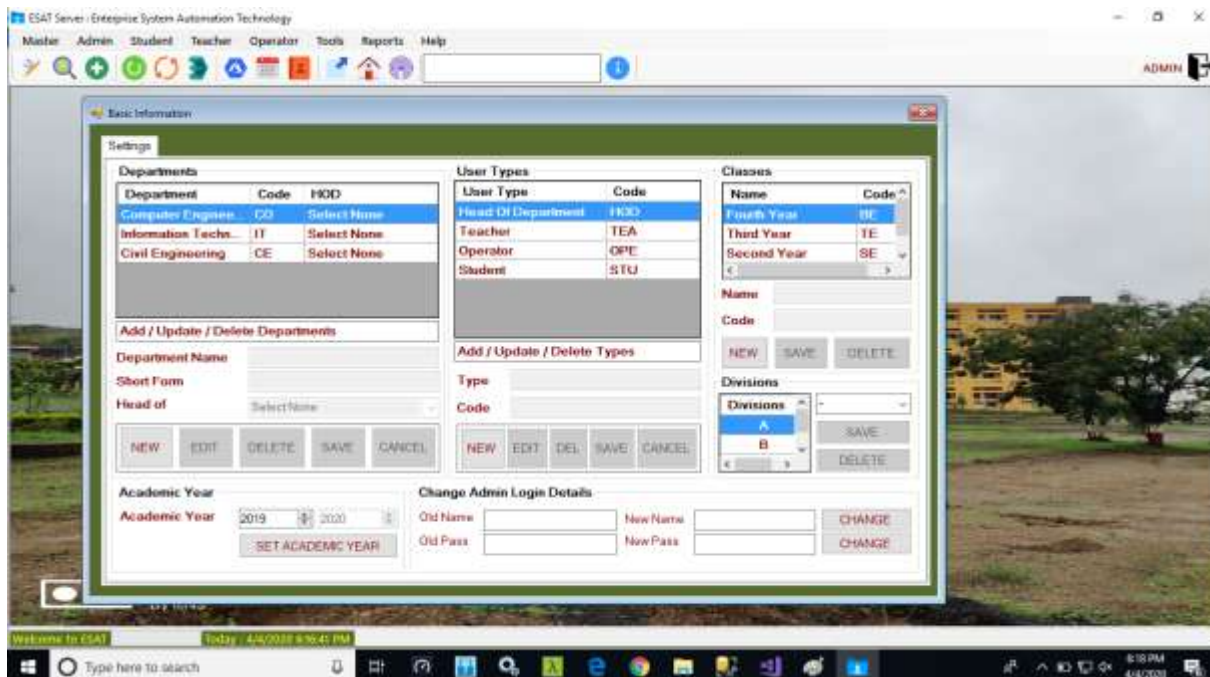


Fig: Basic Department Data Page

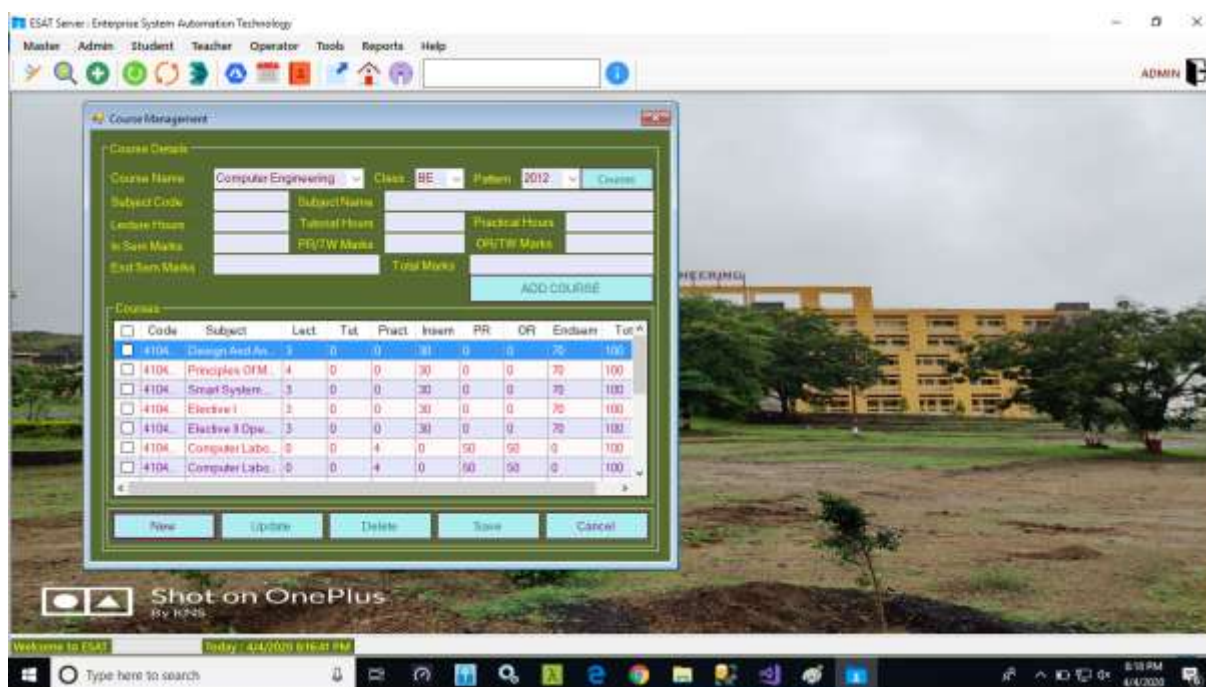


Fig: Subject/Course Details Page



Fig: Assign Workload to the Teacher Page

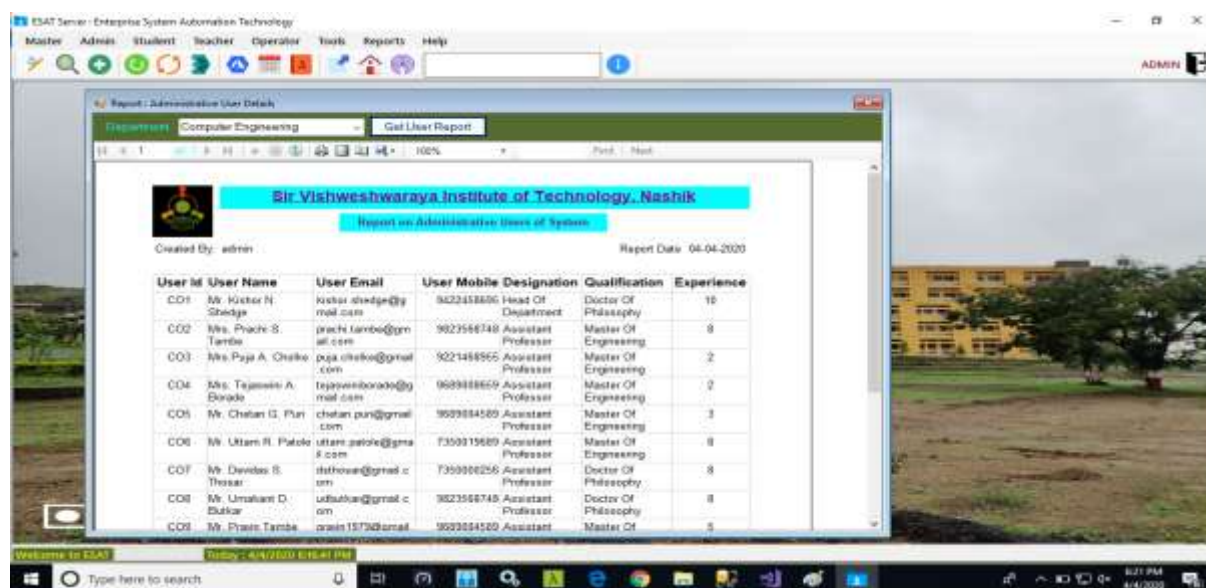


Fig: User/Teacher Details Report

- Client Side:

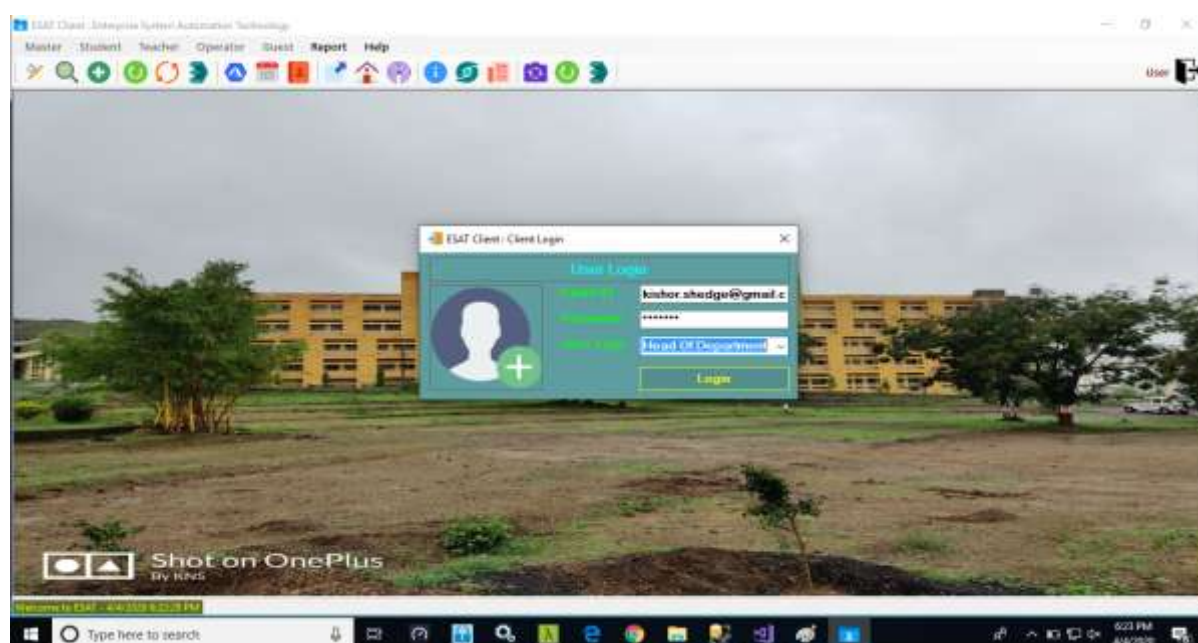


Fig: User/Teacher Login Page

ESAT Client: Enterprise System Automation Technology

Master Student Teacher Operator Guest Report Help

HOD: kishor.abhedge@gmail.com

Teacher Information Department: Computer Engineering Type: Head Of Department ID: C01

Personal Details

Teacher Name: Mr. Kishor P. Abhedge Mobile1: 9422450690
 Teacher Email: kishor.abhedge@gmail.com Mobile2: 9422450690
 Address: Flat N-23, Sai Sakul MG Road City/Village: SHINAR, Taluk: SHINAR
 District: NASHIK Pin: 422110
 State: MAHARASHTRA
 Aadhar No: 1234-1234-1234 PAN No: 12345

Qualifications

Qualification	Score	Qualification	Score
Ph.D. Computer Engineer	85.00	M.E. Information Technol	82.00
PGD Computer Engineer	85.00	Opentia Computer Engineer	85.00
PGD AI	85.00	Grad. AI	85.00
PGD Science	85.00	BSC English Medium	80.00
Other IT	85.00	B.A. MSCIT	80.00

Other Information

Gender: Male Marital Status: Married
 Language: Marathi Experience: 15
 DOB: 01-01-1980 Age: 40
 Designation: Head Of Department

Buttons: Update, Save, Cancel

Fig: Teacher Information Page

ESAT Client: Enterprise System Automation Technology

Master Student Teacher Operator Guest Report Help

Operator: shital.jagtap@gmail.com

Daily Attendance Report Department: Computer Engineering Type: Operator ID: C012 DATE: 02-03-2020

Roll: 2015-2020 Class: BE Section: A Type: ODD Get Record

Roll	Name	Code	Subject	Parent Mobile	Email
7	Shubhdeep Baleshwar Nagot	410441	Design And Analysis Of Al	724023302	anubhdeepnagot@gmail.com
11	Sheek Ranjay Shinde	410441	Design And Analysis Of Al	9325425237	anubhdeepnagot@gmail.com
15	Sheek Ranjay Shinde	410443	Smart System Design And	9325425237	anubhdeepnagot@gmail.com
17	Ashwin Baleshwar Kanwar	410445	Elective & Open Elective	9610301141	anubhdeepnagot@gmail.com

Buttons: SEND SMS

Fig: Daily Absent Student SMS Sending page

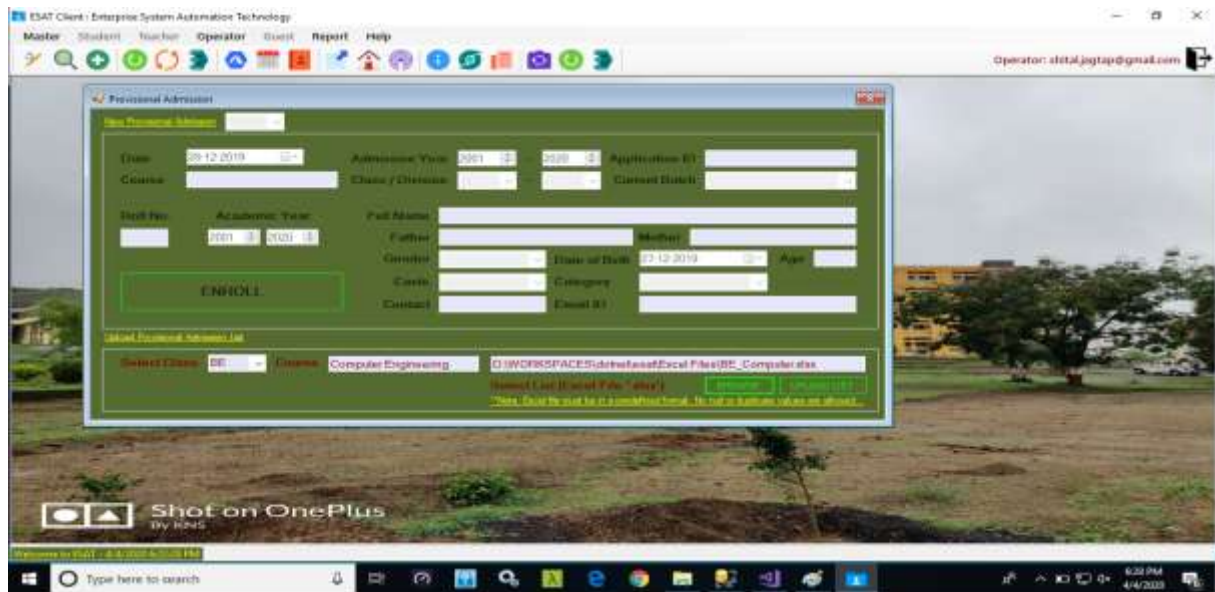


Fig: Upload Provisional list of Student By Operator

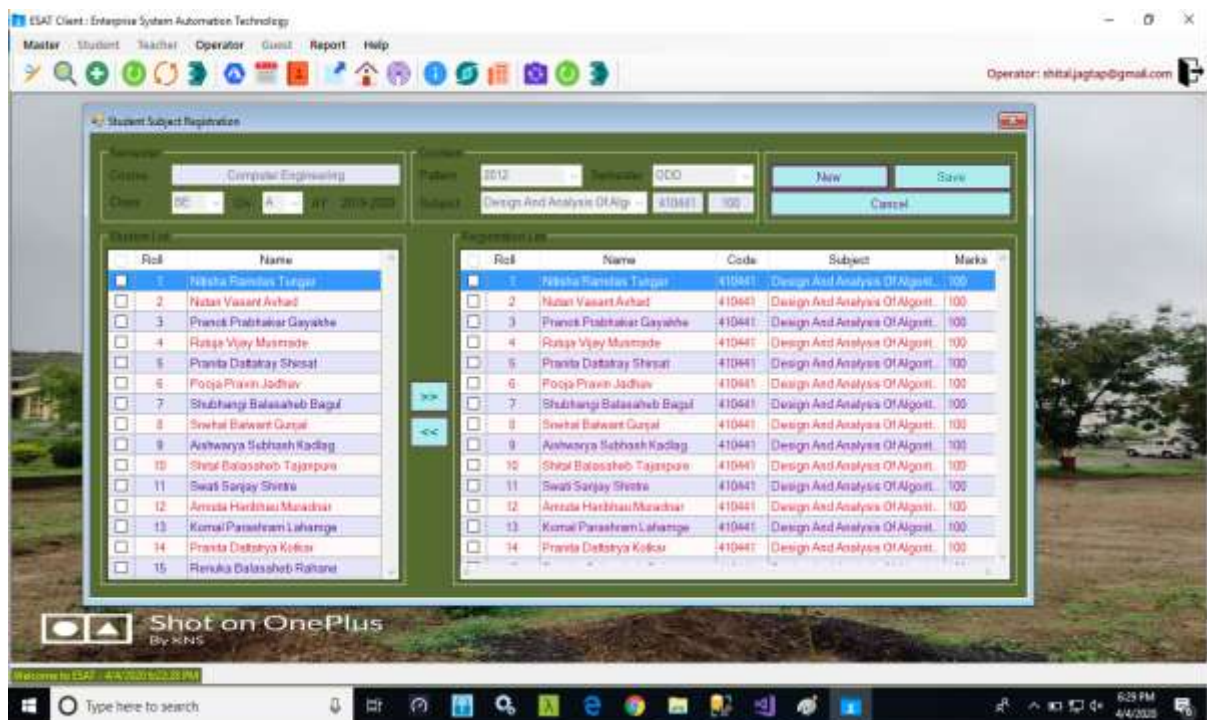


Fig: Register Student By Operator

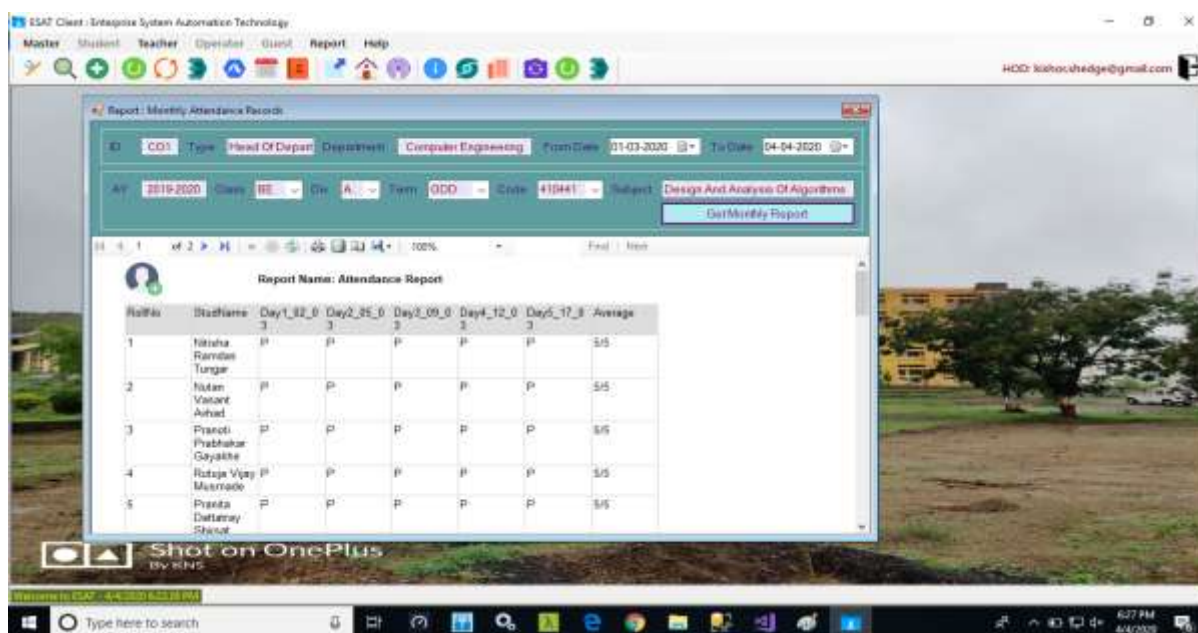


Fig: Monthly Attendance Report View By Teacher

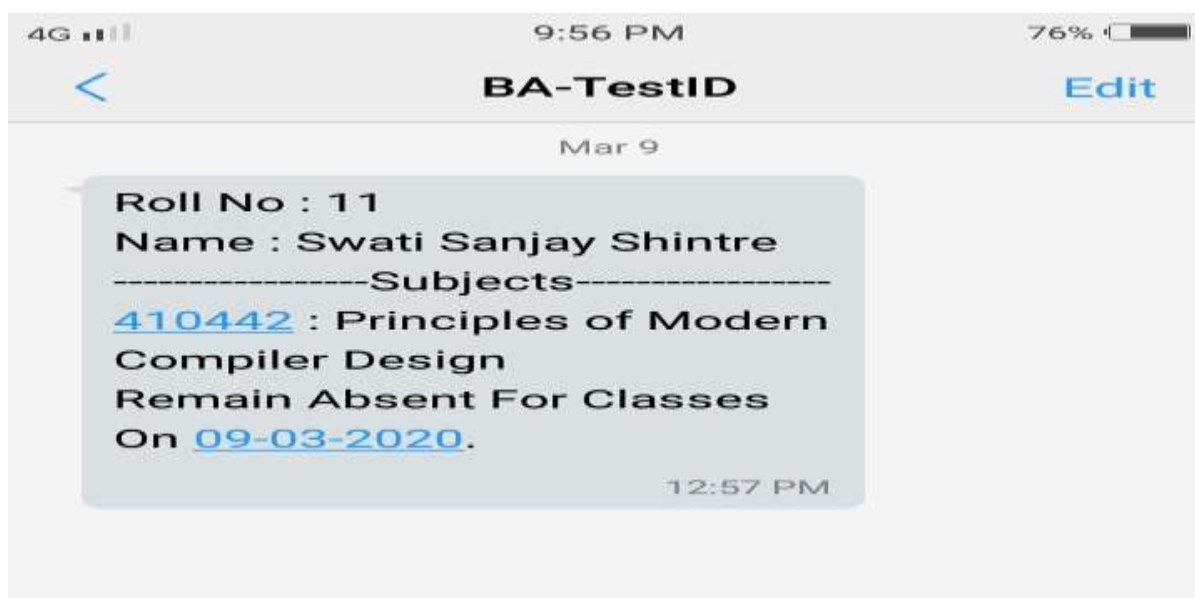


Fig: Parent Got SMS Regarding Our Ward Absent in College

V. CONCLUSION AND FUTURE SCOPE

The fundamental problem in maintaining and managing the Manual work by the administrator is hence overcome. Also we keep all the records of students and overall information of department. Manual work is decreased by using this software. Prior to this it was a bit burdensome for maintaining the schedule and also keeping track of the daily timetable. And also send daily attendance report to the parents on their Mobile number. But by developing this Network-based application the administrator can enjoy the job, doing it effortlessly and also by saving the precious time.

Future Scope

- 1) Extend Departmental Activity into whole College Activity.
- 2) Extend it into Android Application.
- 3) Provide Virtual Private Network.
- 4) Add Other College Activities

ACKNOWLEDGMENT

We are thankful to Dr. Y. R. Kharde, Principal, SVIT for providing useful resources for the completion of this project work & We also Greatful to Thanks our project guide Mr. Kishor N. Shedge (Head of Computer Engineering) Department for the guidance and constuctive suggestions that helpful us in the preparation of this project. We also thankful to the all staff members of Computer Engineering Department, SVIT ,Nashik.

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