

PROJECT REPORT ON

E-GYAAN

Submitted By

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2014 – 2015

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CERTIFICATE

This is to certify that

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Has Successfully Completed Project on

E-GYAAN

In partial fulfillment of the requirement for the Diploma in Computer Engineering.

2014 – 2015

Under the guidance of
Dr. S.G. KOLTE

PROJECT GUIDE

EXAMINER

HEAD OF DEPARTMENT

PRINCIPAL

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-BRO. BADAL M. KOTAK, SIS. MADHURA S. KULKARNI, SIS. SHREYA A. MAJITHIA, BRO. AKASH A. PARMAR

ABSTRACT:

E-GYAAN

Technology nowadays is developing at a very fast pace. Basically when learning is done with the help of technology then this environment is called a E-Learning environment. So EGYAAN is a Innovative E-Leaning project that is basically bringing in “technology” into the current education system. This project will help reducing stress for students to carry notebooks and textbooks to colleges everyday; by digitizing all textbooks “online”. The idea behind this project is to give students a light weight low in cost but still very powerful tablet like computer(Wooden based tablet) which has a raspberry pi as its main processor and internal storage to act as all in one hardware to retrieve and store textbooks, take down notes as well as carry assignment books in digital format with them in a secured environment. Not only that it help teachers to automate attendance process and generate defaulters list. In addition this project has online virtual notice board where students can view the latest notices along with facility for students to submit their doubts from anywhere. The EGYAAN website built using HTML, CSS and Bootstrap Framework is made mobile friendly so it can also be accessed from mobile phone web browsers. An Android Application built using Android Studio will also be made available to students free of cost to access time table, raising doubts, have a look at the notice board, etc on the move. Database connectivity of this project is ensured using PHP with a MySql database on a Apache server. There are many E-Learning projects in the market, but they either focus only on the “Learning” part or the “School Management” part, but EGYAAN is a mixture of both “Learning”+”School Management”. EGyaan is basically an easy to implement and use, open source Innovative E-Leaning project that is been made with a vision to cater schools, colleges and universities of all over the world. Basically EGYAAN is *Using Technology For Learning.*

ABBRIVATIONS AND SYMBOLS :

- USB - Universal Serial Bus
- R-Pi - Raspberry Pi
- LCD Controller – Liquid Crystal Display Controller
- HDMI - High-Definition Multimedia Interface
- DB – Database
- App – Application
- Database Server



- Ubuntu Server



- Interfacing Cable



- Power Supply Cable



CHAPTER

1

INTRODUCTION
&
MOTIVATION

INTRODUCTION:

E-Gyaan is a project that will help in reducing the strain on the shoulders of the students to carry heavy bags to their institute. They will only have to carry the E-Gyaan tablet that we will be providing. All of their textbooks will be stored in the tablets in a digital format. This will also help our environment as there will be no paperwork that will be done either by the students or by the teachers. This project includes three parts, firstly The Website, this being a major part of our project will include all the features like Reading books online, online notice board, online doubt section and many more. Secondly, this project will also provide a mobile application only for students and parents that will provide options for raising doubts, accessing important notices, having a look at the timetable on the move. Thirdly, when the student comes to the class he will be bound in a client server environment with a Ubuntu server and our E-Gyaan Tablet as a client.

1.1 PROBLEM STATEMENTS:

- **Paperwork:**

The students have to take a lot of efforts and complete their assignments. Also the teachers have to maintain their registers for attendance which can be a pain for the teachers.

- **Stress on students:**

The students have to carry heavy bags to their institutes which can be tiring. They also have to maintain sheets for assignments and journals that can sometimes cause stress.

- **Attendance Proxy:**

The students at times give proxy attendance of their friends which is not acceptable as per rule.

- **Educational system is not connected to technology:**

The education system that is followed these days is still based on the old customs of textbooks and books which is far more behind than the technology that is developing.

- **High study material Cost:**

The students have to purchase textbooks, notebooks or even take xeroxes of the books available in the library whose costs are very high.

- **Environment:**

As the education system is paper based and paper is made out of cutting trees it is not very environment friendly. Lakhs of trees get cut per year to make paper out of them.

1.2 IDEA BEHIND PROJECT :

In today's education system the strain on student's shoulder by carrying heavy books and the stress on students of writing big assignments is very painful. The cost of the books spent per year is very high. So the expenses of the study material is rising. We perceived the idea of this project with the thought of bringing technology into the current education system, reducing stress on the students shoulder of carrying heavy bags daily, completing assignments; by digitizing all textbooks and notebooks and making them focus more on their studies instead of just focusing on completions and not learning. We wanted to give all this to the Indian Educational Institutes at lowest possible cost so we planned to keep this project Free And Open Source. With a dream that even the student who does not have a computer at home must be exposed to technology we planned to give a low cost affordable tablet to all the students that would be their personal computer as well as their study material. With the vision of making India Education even more advance and digitizing the curriculum came the idea of project EGyaan.

1.3 FEATURES OF PROJECT :

- Portable : In this project we had aimed to portability so we have provided a E-Gyaan Tablet.
- Easy To Use : This project is been made really easy to use so that students of grades can use it easily.
- Secure : This project is made highly secure as it is bound to work within a client server environment and steps have been taken to assure security of data.
- Flexible : EGyaan is a project made for no specific educational institute, it allows full customization according to the infrastructure of the institute where it is being implemented in, hence, it is a highly flexible product.
- Centralization : If this project is implemented in all grades starting from 1st up to PhD level it will result into a much more easy to manage and a centralized education system.

CHAPTER

2

ANALYSIS

2.1 PROCESS MODEL :

WATERFALL MODEL :

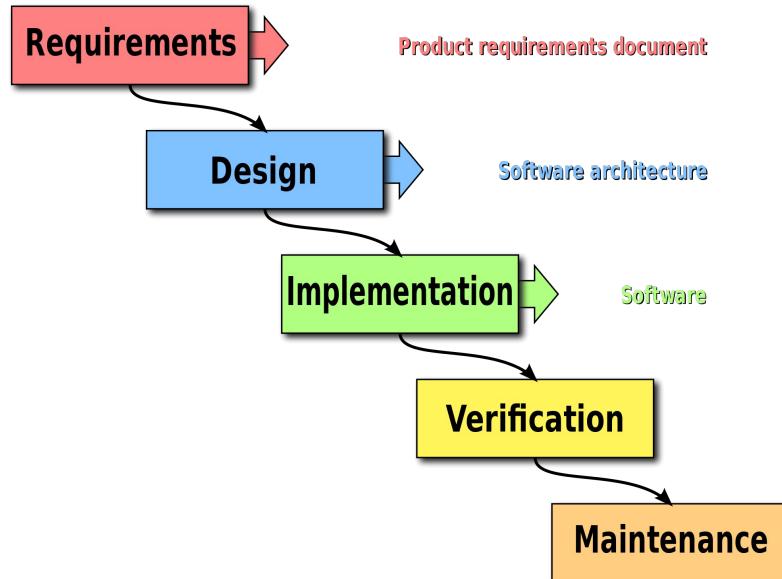


Figure. Water Fall Model

- **Requirements** : In this phase we analyzed the project and we filtered out the hardware and software requirements that we will have to take care to ensure quality in the project.
- **Design** : In this phase we made a document which contained basic layout designs of the website and the android application and also worked on the functional diagram and the hardware circuit flow.
- **Implementation** : We have finished working on this phase in which we did the coding part of the project.
- **Verification** : In this phase we verified the product that we have made in the Implementation phase with the requirements that we have set for this project in the first phase (Requirements phase).
- **Maintenance** : This phase is also called the deployment phase in which we will be delivering the product and will provide support/maintenance for the product.

2.2 FEASIBILITY STUDY :

- i. **Technology and system Feasibility :** In todays world, technology is moving from big desktops to small and portable devices like tablet and mobiles, our project will be providing a tablet to the students which will help to take the education system towards the latest technology.
In current education system all the work is done on papers, so our project will give us the same thing in a digitized way which is feasible with the current education system.
- ii. **Economic Feasibility :**
 - **Development Cost :** The development cost of this project is around 6,000/- . The tablet that will be provided will cost around 5,500/- to 6,000/- . And the cost of softwares used is 0/- as we are using all open source products for development and all open source languages like PHP, HTML, CSS, MySQL, GIMP (For Designing background images) which are all free of cost.
 - **User Cost :** The user cost of this project is 5,500/- i.e. the cost of the tablet.
- iii. **Legal Feasibility :** Our project is not violating any legal rule.
- iv. **Schedule Feasibility :** We have completed this project properly on schedule, hence, we have ensured schedule feasibility.
- v. **Operational Feasibility :** The most important part to be kept in mind while making the project is to make the project user friendly and to make it totally operationally feasible. Our project is designed to be very easily useable to students of all grades and is perfectly operationally feasible.

2.3 COST ANALYSIS :

CURRENT EDUCATION SYSTEM	E-GYAAN
In the current education system the cost of study material is too high. The minimum cost of a school or college student per semester is approximately 8,000/- to 10,000/- .	But if the current education system is replaced with E-GYAAN, student will be provided with a tablet and all the study material will be digitized which cuts down the cost as the tablet is of 6,000/- which is just one time.
In the current education system a lab with approximately 20 machines will cost the college around 6,00,000/- .	But if E-GYAAN is implemented no labs will be needed as each student will have their own tablet. Hence, saving high cost of the school/college.

SYSTEM COST :

- **Raspberry Pi** : 2,700/-
- **LCD** : 2,500/-
- **Power Bank** : 500/-
- **Other** : 300/-
- **Total** : 6,000/-

2.4 SURVEY :**i. SURVEY FORM :**

K.J. Somaiya Polytechnic
(COMPUTER ENGINEERING DEPARTMENT)
PROJECT SURVEY FORM
E-GYAAN

1. What do you think, Will this be a next step in the education system?
 Yes. No.

2. Will this reduce burden on your shoulders?
 Yes. No.

3. What would you prefer?
 Current Education System. E-Gyaan. Combination of Both.

4. This project will provide you a area to ask doubts, will it be helpful?
 Yes. No.

5. What do you think, Tablets will be useful for studies or possibly be misused?
 Useful. Misused.

6. Do you think this project will help easy the process of attendance and ensure accuracy?
 Yes. No.

7. Digital textbooks, assignment books, notes are better or paper based books are better?
 Digital. Paper Based. Both are equally good.

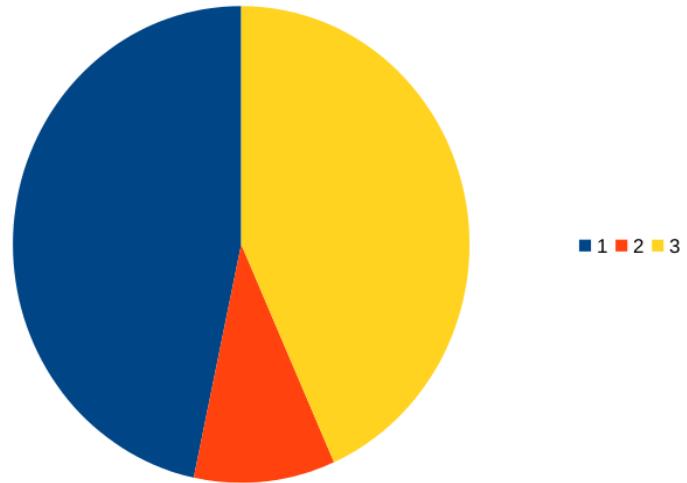
8. What do you think, Will Educational Institutes adopt E-Gyaan?
 Yes. No.

9. Will this save overall cost of study material of the student?(As everything is digital)
 Yes. No.

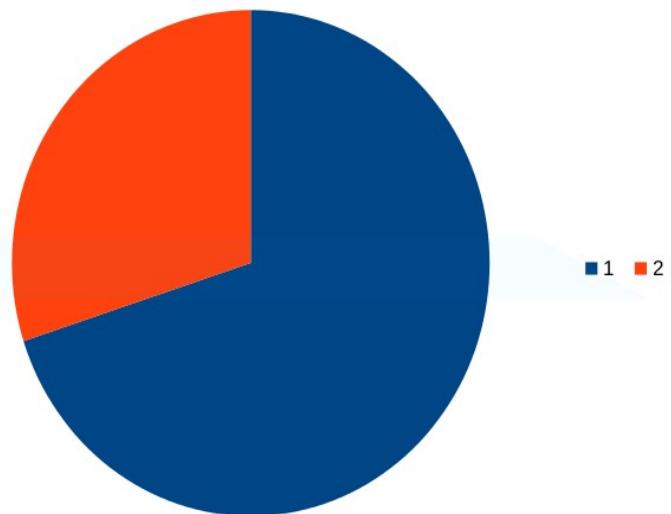
10. What would you prefer?
 Allow students to carry their own laptops. Provide E-Gyaan tablet to all. Let the institute decide about this.

ii. Data Presentation In Pie Chart Form :**E-GYAAN SURVEY REPORT****Q 1)Digital textbooks, assignment books, notes are better or paper based books are better ?**

- 1) Digital 2)Paper based 3)Both are equally good

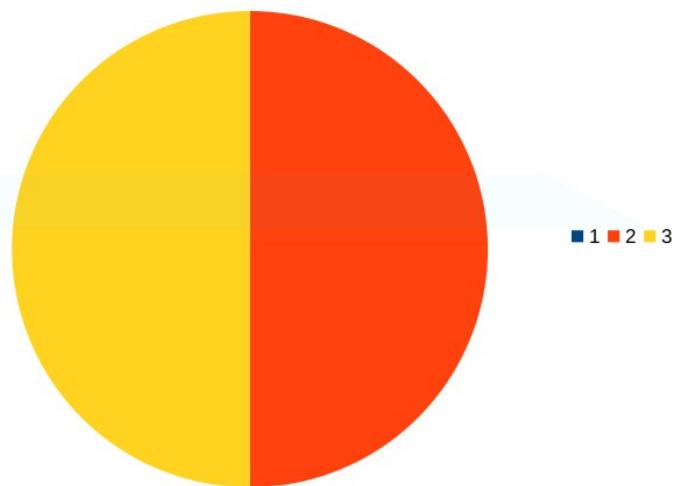
**Q 2)What do you think, Tablets will be useful for studies or possibly be misused ?**

- 1)Useful 2)Misused



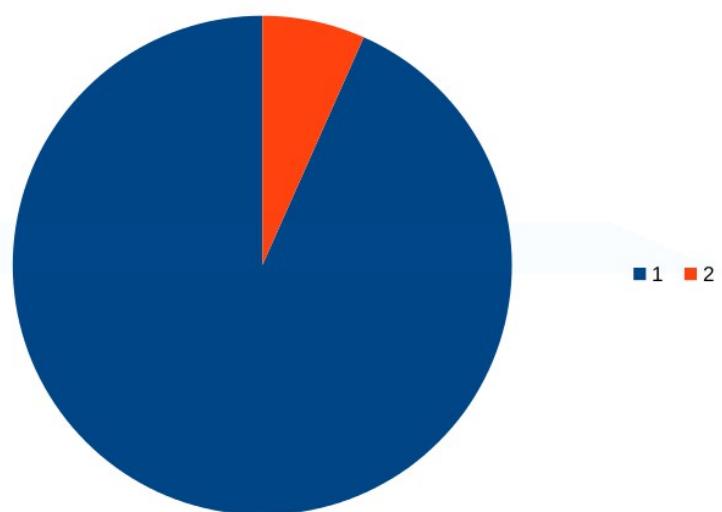
Q 3)What would you prefer ?

- 1)Current educationl system 2)E-Gyaan 3)Combination of both



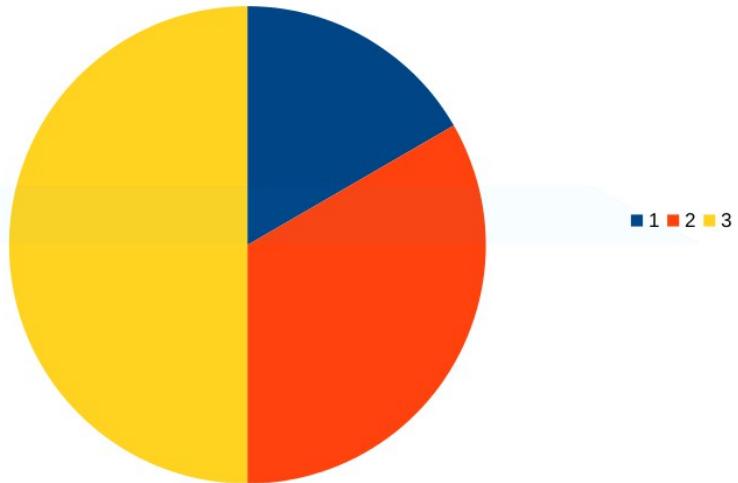
Q 4) Will this save overall cost of study material of the student ?

- 1)Yes 2)No



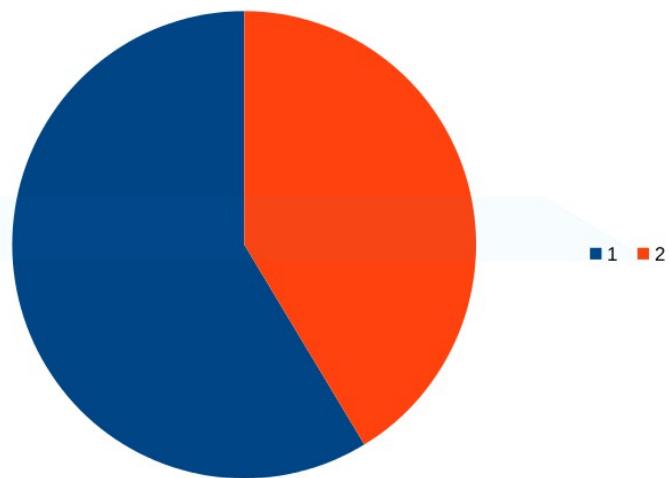
Q 5)What would you prefer ?

1)Allow students to carry their own laptops. 2)Provide E-Gyaan tablets to all. 3)Let the institute decide about this.



OVERALL SURVEY RESULT

1)Positive 2)Negative



CHAPTER

3

**TECHNOLOGIES
REQUIRED**

3.1 Hardware Required :

The hardware in the project will be a full fledged Tablet named E-Gyaan Tab. The Tablet will be made of:

- LED screen as VDU.
- Raspberry pi
- Power bank as power supply.
- LCD controller to connect Raspberry Pi and LED screen.
- HDMI.
- Wifi Dongle.
- Server

3.2 Software Required :

The software has two parts : Web part and other is the Android Application. The softwares used:

- HTML
- PHP 5.5
- CSS
- MySQL
- Android Development Toolkit.
- Raspbian OS
- Ubuntu 12.04

The GUI of the Web part will be made by using HTML and CSS. The Database of the whole Application and Web part would be managed by using MySQL and PHP 5.5. The Android application would be made using Android Studio (Android Development Toolkit).

CHAPTER

4

DESIGN

4.1 DIAGRAMS :

- i. Functional Block Diagram
- User Flow and System Flow:



Figure. EGyaan Website

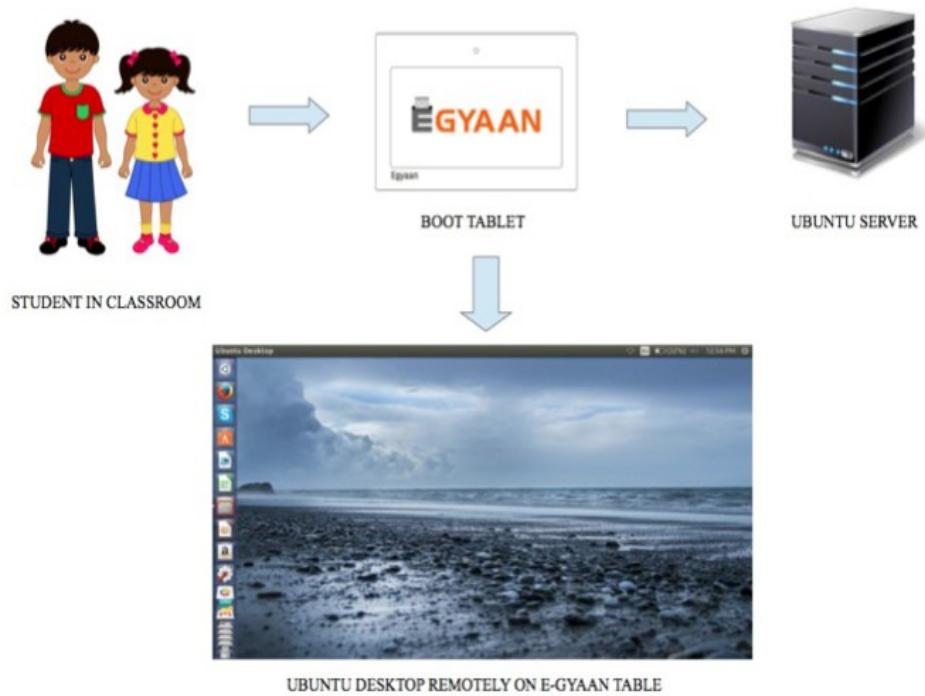
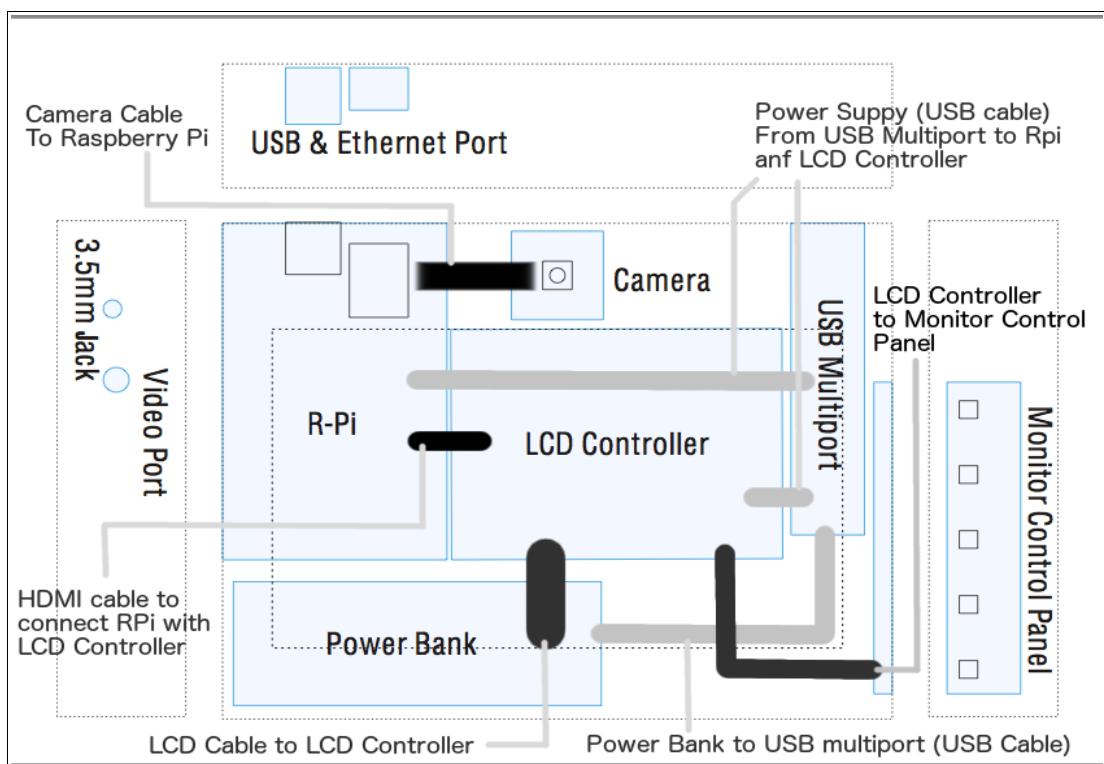
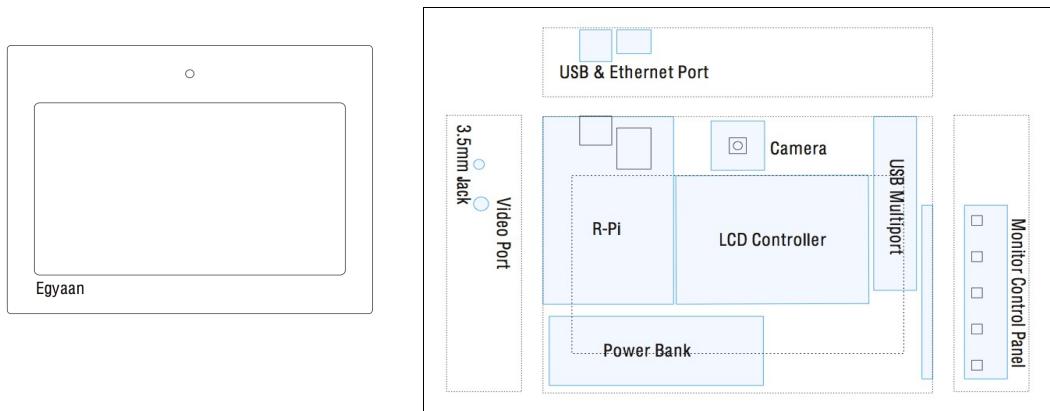
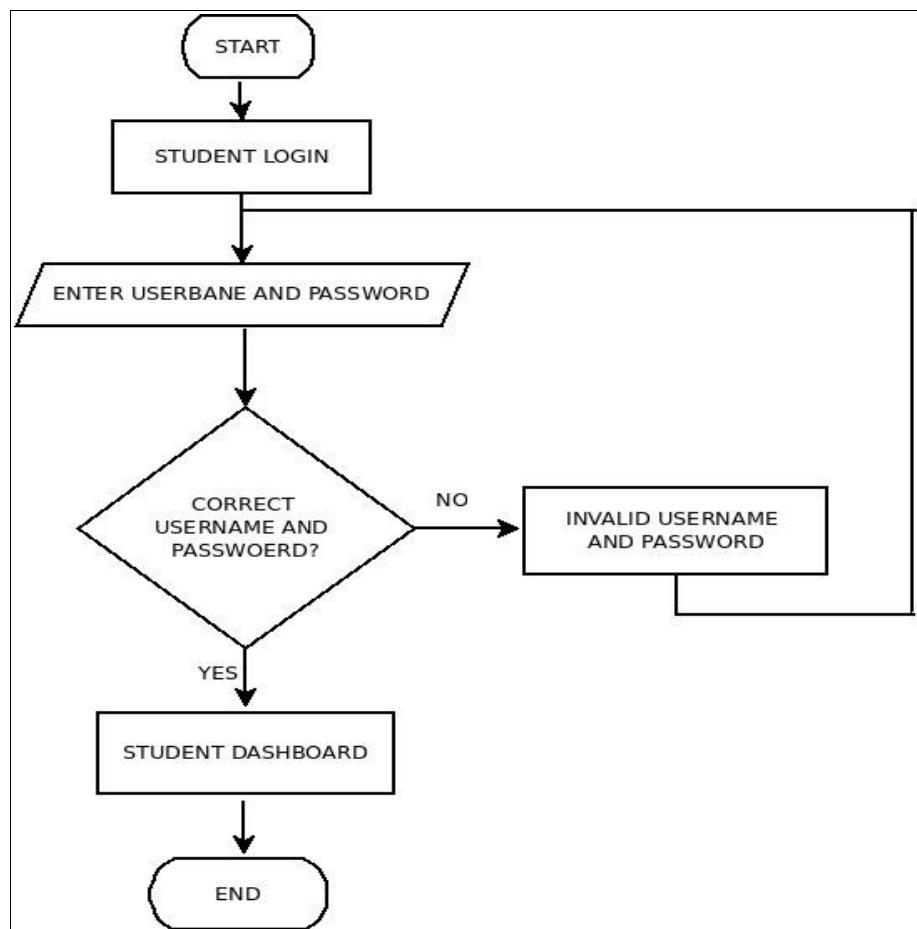
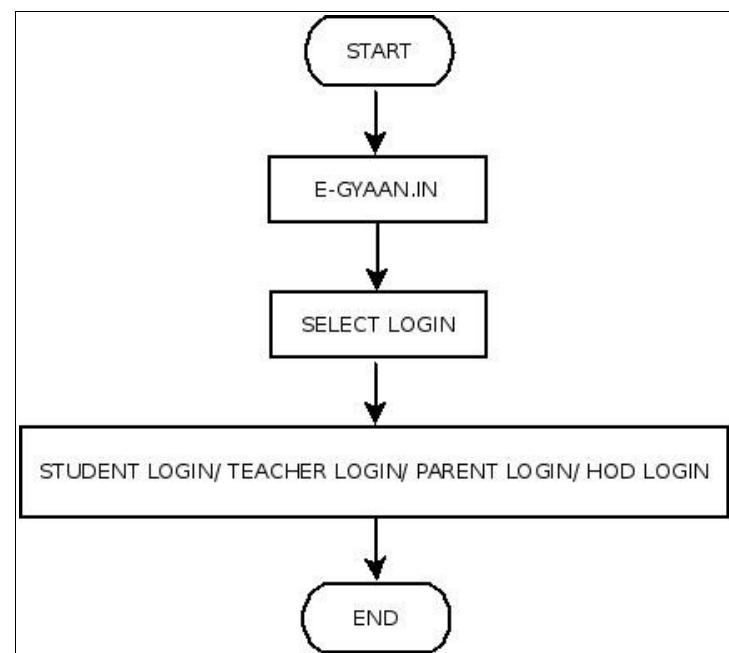
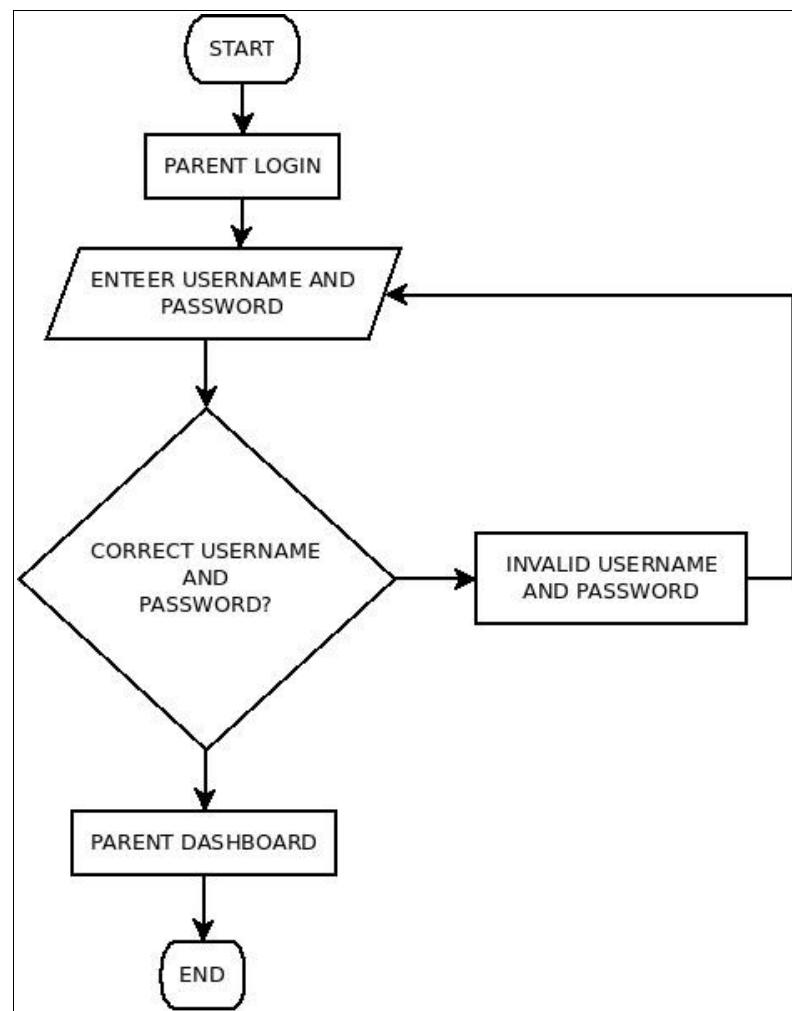


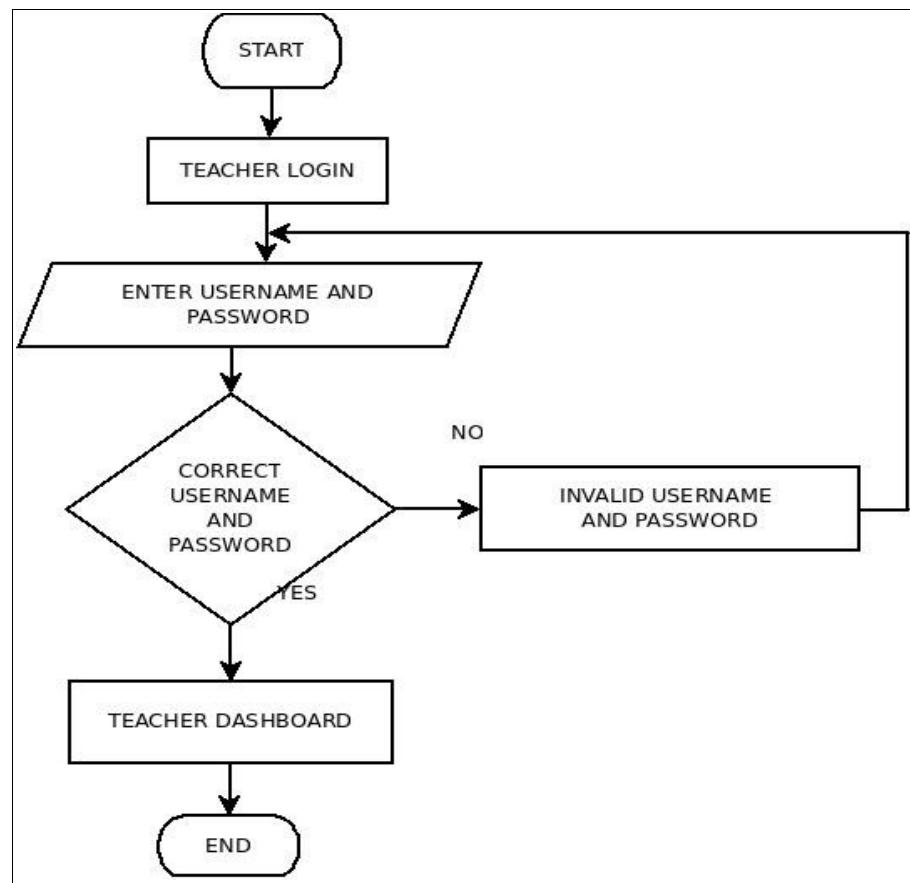
Figure. Student and the EGyaan Tab

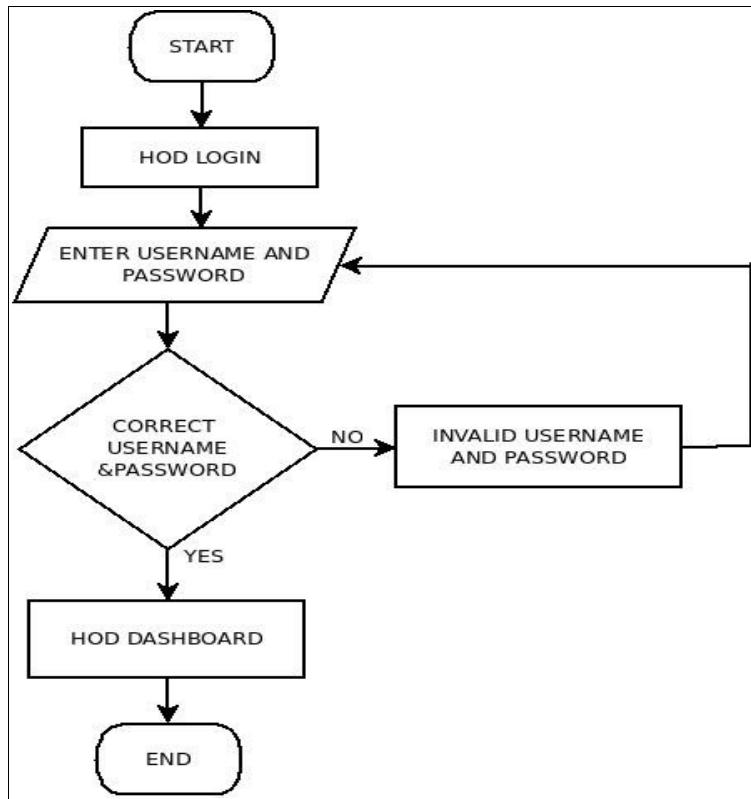
ii. Hardware Circuit Diagram :



iii. Flow Chart :







4.2 Methodology:

When the EGyaan software is first downloaded only one login is enabled for the user that is the Admin login, this login is used to setup the whole infrastructure of the institute.

The features in Admin Dashboard are:

- Add Branch/Standard: This tab is used to add the branches/standards of the institute where the software is being implemented.
- Add Courses: This feature of the Admin dashboard is user to add the courses of courses of each branch that the user adds in the add branch tab.
- Add HOD: This feature is used to assign HOD to each department (branch) that has been added.
- Add Teacher: This tab is used to add the teachers to respective branches and assign them their respective subjects.
- Add Student: This tab is used to add all the student details and also view each student of the institute and also edit the details if necessary.

When the student enters the class the tablet will get connected to the ubuntu server. He/she has to enter the username and password given from the institute.

Once the student logs-in to his/her account he/she has many options that can be selected from the Dashboard. Few of the features that the Dashboard will consist is:

- Textbooks: The student can read the textbooks uploaded by the teacher by selecting this option.
- Submissions: The student has to submit the assignments given by the teacher at the specified date and time given by the teacher.
- Timetable: The student can read the weekly timetable with the help of this option.
- Notice Board: The student can read the notices uploaded by the H.O.D. with the help of this option.
- Doubts: The student can upload his/her doubts by this option. And the teacher of that subject or other Student can answer to the doubts.
- Result: The result of that student will be shown in this option.
- My Information: The review of that student given by the teacher will be shown in this option.
- Syllabus: The Syllabus of the selected course will be shown in this option.

The features in the Teacher Dashboard are:

- Textbooks: The teacher can select two options one is Read Book and other is Post book. In Read book option he/she can read the textbooks that are already uploaded. In Post Book option he/she can add a new book.
- Assignments: In this option the teacher will set the date and time of submitting the assignment.
- Syllabus: The Syllabus of the course that is given to that teacher can be uploaded by this option.
- Student Review: The review of the student can be seen by entering his or her enrollment number.
- Notes: The teacher will add notes of the course given to him or her by this option.
- Timetable: The teacher will see the timetable and one admin teacher can also edit the timetable.
- Notice Board: The Teacher can see the notices uploaded by the H.O.D.

The features in the H.O.D. Dashboard are:

- Notice Board: The H.O.D. can add notices and also see them. The notices are of three types namely Common Notice, Urgent Notice and Branch Notice.
- Make Admin: This tab is to assign adminship to anyone teacher of the branch who will have to privileges to edit the timetable of the branch.

The features in Parent Dashboard are:

- Notice Board: The Notices uploaded by the H.O.D. can be seen in this option.
- Result: The Result of his or her ward will be shown here.
- Information: The Review of his/her ward given by the Teachers will be shown here.

4.3 APPLICATIONS:

- E-GYAAN can be used in any of the educational institutes such as School, Colleges, Private classes, etc.

- This will help the our Indian educational System to be updated to the latest technologies or atleast use the current technology in a efficient way.
- The students can avoid effort of writing assignments.
- The effort taken by teacher of taking attendance, generating detention list and all the work done by the teacher throughout the semester can be reduced.
- The educational system will work in a technical way.

CHAPTER

5

IMPLEMENTATION

1. How To's:

- How to install XAMPP on Ubuntu:
- **Server:**
 - XAMPP stands for Cross Platform Apache MySQL PHP and Perl.
 - It is basically used to test websites by making your own machine act as a Apache Web Server.
 - Step 1: Download the 32 bit or 64 bit package according to your operating system from:
[**https://www.apachefriends.org/download.html**](https://www.apachefriends.org/download.html)
 - Step 2 : After downloading the package make the package executable by typing the following command in the terminal: **chmod 755xampp-linux-*installer.run**
 - Step 3 : Run the installer by typing the following command in the terminal: **sudo ./xampp-linux-*installer.run**
 - Step 4 : Follow the installation to finish installation.
 - Step 5 : Type the following command in the terminal to start the XAMPP application: **sudo /opt/lampp/lampp start**
 - **Something like this must be seen on the screen:**
Starting XAMPP 1.8.2...
LAMPP: Starting Apache...
LAMPP: Starting MySQL...
LAMPP started.
Ready. Apache and MySQL are running.
 - There is a Graphical tool also available for managing the XAMPP server, it can be executed by the following command:
cd /opt/lampp
sudo ./manager-linux.run (or manager-linux-x64.run)
 - Make Ubuntu 12.04 a XDMCP server (to make ubuntu accept thin client requests) :
 - We have to make changes in the configuration file of LightDM(lightdm.conf) which is the display manager of ubuntu 12.04.
 - Step 1 : Type the following command in the terminal: **cd /etc/lightdm**
 - Step 2 : Then, we have to open the configuration file of LightDM by typing the following command: **sudo nano lightdm.conf**
 - Step 3 : Add the following lines at the end of the file:
`[XDMCPServer]
enabled=true`
 - Step 4 : Restart lightdm by the following command: **sudo restart lightdm**
 - **Clients :**
 - X Server

You can run a separate X server (Switchable to by Ctrl+Alt+8..0) which will

query for XDMCP Connection e.g: **sudo Xorg -terminate -query \$REMOTE_HOST :1**

This will start another X server at VT8. \$REMOTE_HOST is the hostname or an IP address that is running XDMCP server. :1 is the number of the display. The default display you are using is :0 and can be seen in \$DISPLAY variable. "-terminate" option can be specified to shut down X server once the session is finished and X server is reset.

- Remmina

To enable XDMCP in Remmina run the following:

sudo apt-get install remmina-plugin-xdmcp

This plugin depends on Xephyr, a X server outputting to a window on a pre-existing X display.

Xephyr directly

Xephyr -query \$REMOTE_HOST :1

To set window size, use -screen WIDTHxHEIGHT option. Option -fullscreen will run Xephyr in full screen mode. To capture and release mouse pointer and keyboard use Ctrl+Shift. \$REMOTE_HOST is the hostname or an IP address that is running XDMCP server.

2. User Flow:

- Firstly when the software is first downloaded, the user is given access only to the Admin Login, where the whole infrastructure of the institute is setup from adding courses, teachers, HOD, branch to adding students; after these users are added only then the other login are enabled for use.
- On the users part, the user must enter his/her username and password in the respective login to get access to his/her dashboard and do the desired work.
- When the student comes into the class with the EGyaan tab he/she must run the script to connect to the ubuntu server to get the desktop of the ubuntu server remotely onto the tab.

3. System Flow:

- On the systems end, all the users, branches, courses that are added from the Admin login get added to the MySql database.
- Once the user ends the username and password and tries to login the system verifies the login credentials with the database and appropriately give or denies access to his/her dashboard.
- To remotely access the the Ubuntu server the EGyaan tab and the server must be in one network and on the request from the tab the ubuntu server must provide its desktop remotely to the tab making the tab a thin client.

CHAPTER

6

WORKING

1) When the EGyaan software is first downloaded only one login is enabled for the user that is the Admin login, this login is used to setup the whole infrastructure of the institute.

Admin Dashboard :

- Add Branch/Standard: This tab is used to add the branches/standards of the institute where the software is being implemented.
- Add Courses: This feature of the Admin dashboard is user to add the courses of courses of each branch that the user adds in the add branch tab.
- Add HOD: This feature is used to assign HOD to each department (branch) that has been added.
- Add Teacher: This tab is used to add the teachers to respective branches and assign them their respective subjects.
- Add Student: This tab is used to add all the student details and also view each student of the institute and also edit the details if necessary.

2) The Student has to enter the username and password given from the institute to access his/she dashboard.

Once the student logs-in to his/her account he/she has many options that can be selected from the Dashboard.

Student Dashboard:

- Textbooks: The student can read the textbooks uploaded by the teacher by selecting this option.
- Submissions: The student has to submit the assignments given by the teacher at the specified date and time given by the teacher.
- Timetable: The student can read the weekly timetable with the help of this option.
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- Textbooks: The teacher can select two options one is Read Book and other is Post book. In Read book option he/she can read the textbooks that are already uploaded. In Post Book option he/she can add a new book.
- Assignments: In this option the teacher will set the date and time of submitting the assignment.
- Syllabus: The Syllabus of the course that is given to that teacher can be

- uploaded by this option.
- Student Review: The review of the student can be seen by entering his or her enrollment number.
- Notes: The teacher will add notes of the course given to him or her by this option.
- Timetable: The teacher will see the timetable and one admin teacher can also edit the timetable.
- Notice Board: The Teacher can see the notices uploaded by the H.O.D.

H.O.D. Dashboard:

- Notice Board: The H.O.D. can add notices and also see them. The notices are of three types namely Common Notice, Urgent Notice and Branch Notice.
- Make Admin: This tab is to assign adminship to anyone teacher of the branch who will have to privileges to edit the timetable of the branch.

Parent Dashboard:

- Notice Board: The Notices uploaded by the H.O.D. can be seen in this option.
- Result: The Result of his or her ward will be shown here.
- Information: The Review of his/her ward given by the Teachers will be shown here.

3) Student and the EGyaan tab:

- When the student brings the tab to the class he/she has to connect to the Ubuntu server, once the student is connected to the server he/she is bound in a client server environment.
- The desktop of the Ubuntu server is remotely projected onto the tab, here the tab becomes a thin client and use the server for doing any process.

CHAPTER

7

USER MANUAL

1. General Information:

This is a web application that can be setup and used by any EDUCATIONAL INSTITUTE. It has logins for the student, teacher, parent and HOD of the institute. It is a web application designed to work on a Apache web server with MySql Database. Adding the whole infrastructure of the institute is to be done from the only login that is enabled for the first time when the software is downloaded is the Admin login. Rest of the logins are enables as and when users are added from the admin login.

2. Setup:

For setup purpose the user simply need to upload the downloaded packages to a Apache web server with MySql database. And in case of the EGyaan tab the user must setup and network for the server and the tabs of the students and enable XDMCP on he Ubuntu Sever. (installation process is given in the implementation section)

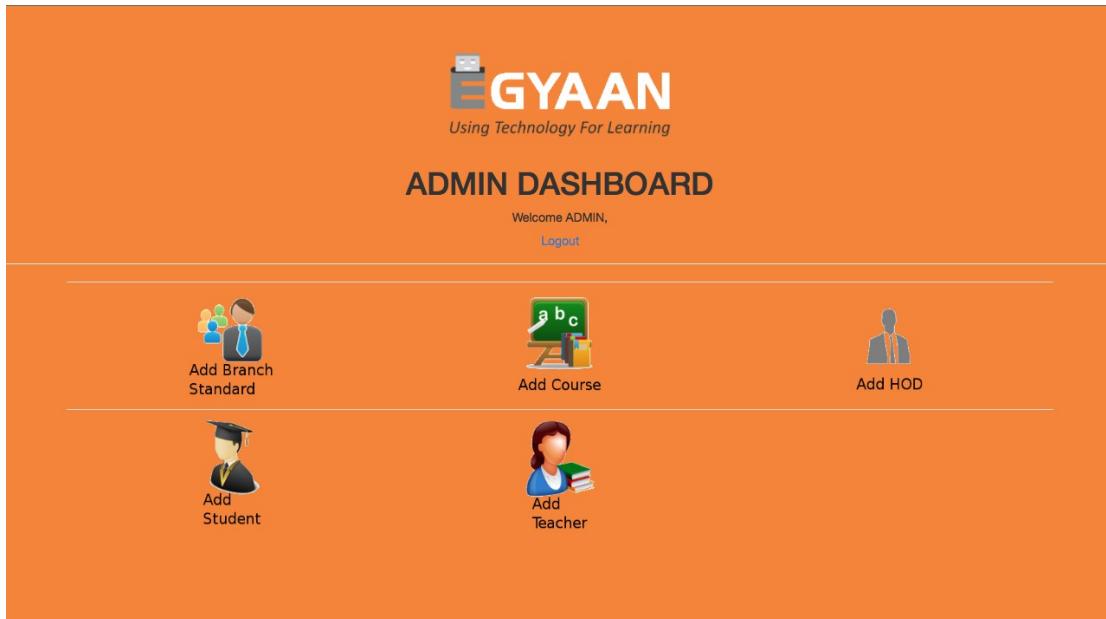
3. Connections:

There are no much connections as such, the only thing is that the ethernet cables much be connected to the Ubuntu server and to all the tabs of each student in order to access the Ubuntu desktop remotely.

4. Getting Started:

The snapshots will guide you for the routine of the software.

Admin Dashboard:



- How to manage Branches:
 - Select the “Add Branch/Standard” button on the admin dashboard to add or delete a branch.
 - Enter the Branch name in the textbox that is provided and click on the add branch button.
 - To delete a branch click on the Delete button provided.

Sr No.	Branch	Delete
1	Civil	<button>Delete</button>
2	Computers	<button>Delete</button>
3	Electrical	<button>Delete</button>
4	Industrial Electronics	<button>Delete</button>
5	Mech	<button>Delete</button>

- How to manage Courses:
 - Select the “Add Course” button on the admin dashboard to add or delete a branch.
 - Enter the Course name in the textbox that is provided and select the branch and click on the Add button.
 - To delete a course click on the Delete button provided.

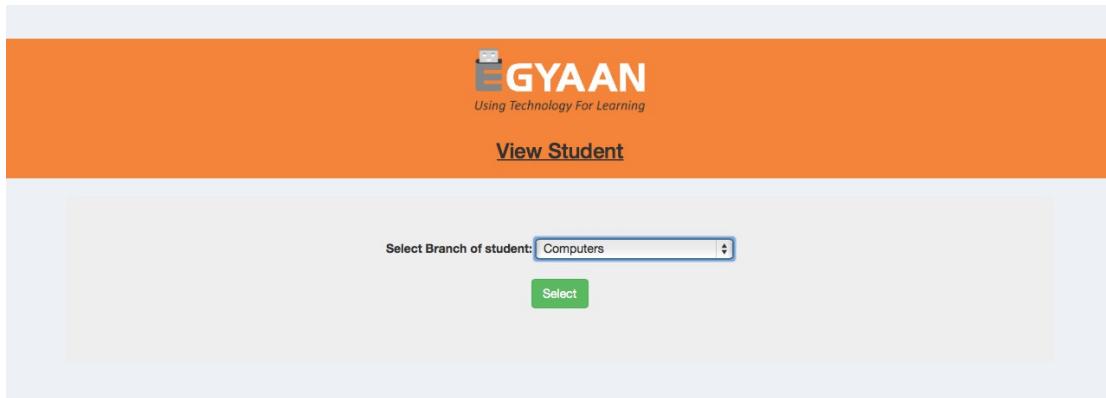
Sr No.	Branch	Delete
1	Civil	<button>Delete</button>
2	Computers	<button>Delete</button>
3	Electrical	<button>Delete</button>
4	Industrial Electronics	<button>Delete</button>
5	Mech	<button>Delete</button>

- How to manage HODs:
 - Select the “Add HOD” button on the admin dashboard to add or delete a branch.
 - Enter the First And Last name in the textboxes that are provided and select the branch and click on the Add button.
 - To delete a HOD click on the Delete button provided.

Sr No.	HOD	Branch	
1	Saint Sebastian	Civil	<button>Delete</button>
2	Rahul Shinde	Mech	<button>Delete</button>
3	Ajay Bhangre	Industrial	<button>Delete</button>
4	Zahid Ahemad	Electrical	<button>Delete</button>
5	S.G Kolte	Computers	<button>Delete</button>

- How to add a Student:
 - Enter the details of the student to be added.
 - Click of the “Add Student” to add the student details.

- How to View/Delete a student:
 - Select the “Add Student” button on the Admin dashboard.
 - View:
 - Select the Branch whose students you want to view and click on “Select”:



- You will be able to see the list of students:

Roll No.	Student Name	Edit
1	Akash Parmar	Edit
2	Badal Kotak	Edit
3	Madhura Kulkarni	Edit

- Edit/Delete:
 - Follow the same steps as above.
 - Then click on the “Edit button” to edit the details of the respective student.
 - Edit the necessary details and click on the “Make changes” button.
 - To delete the student, click on the “Delete Student” Button.

The UID of this student is: 5213938141

Enter Firstname: Badal

Enter Lastname: Kotak

Enter Parent's Firstname: Manoj

Enter Mobile Number: 1234567890

Enter Student's Email ID: badalkotak@gmail.com

Enter Parent's Email ID: m.kotak@gmail.com

Enter Address:
Mulund-W

Select Branch: Civil

Current Branch: Computers

Make Changes

Delete Student

- How to manage Teachers:
 - Click on the “Add teacher” button on the admin dashboard.
 - Select the branch of the teacher you want to add or delete.

Select Branch to add teacher: Civil

Select

- Enter the Teacher's First and Last name and select the course of the teacher and click on the “Add” button, click on the “Delete” button to delete the teacher.

Sr No.	Course	Branch	Teacher	
1	TD	Civil	Rahul Sheety	<button>Delete</button>
2	Hindi	Civil	Mahi Shinde	<button>Delete</button>

Student Login

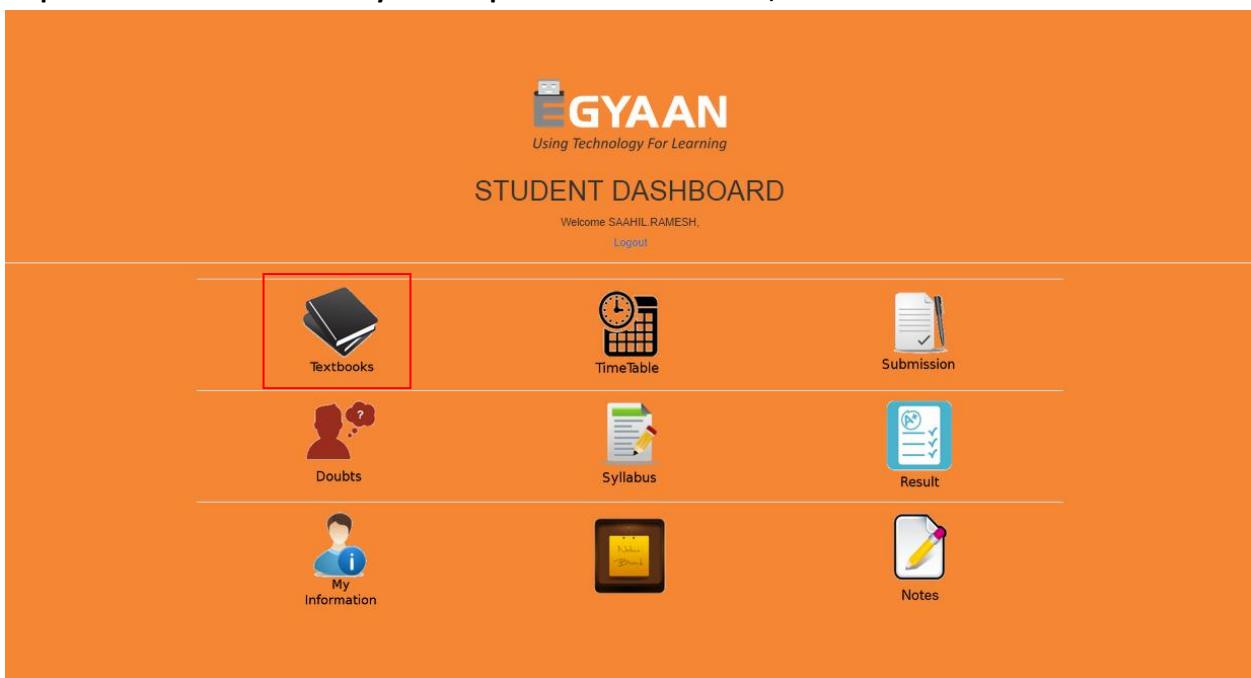
Step 1: First Enter Username and Password of student and click on “Sign In” button to login to Student Dashboard.

The screenshot shows the E-GYAAN Student Login interface. At the top, the E-GYAAN logo with the tagline "Using Technology For Learning" is displayed. Below it, the text "K.J. Somaiya Polytechnic" is shown. A red box highlights the input fields for branch, username, and password, and the "Sign In" button. Below these fields, a message reads: "Select branch:Civil, Username:saahil.ramesh, password:1234".

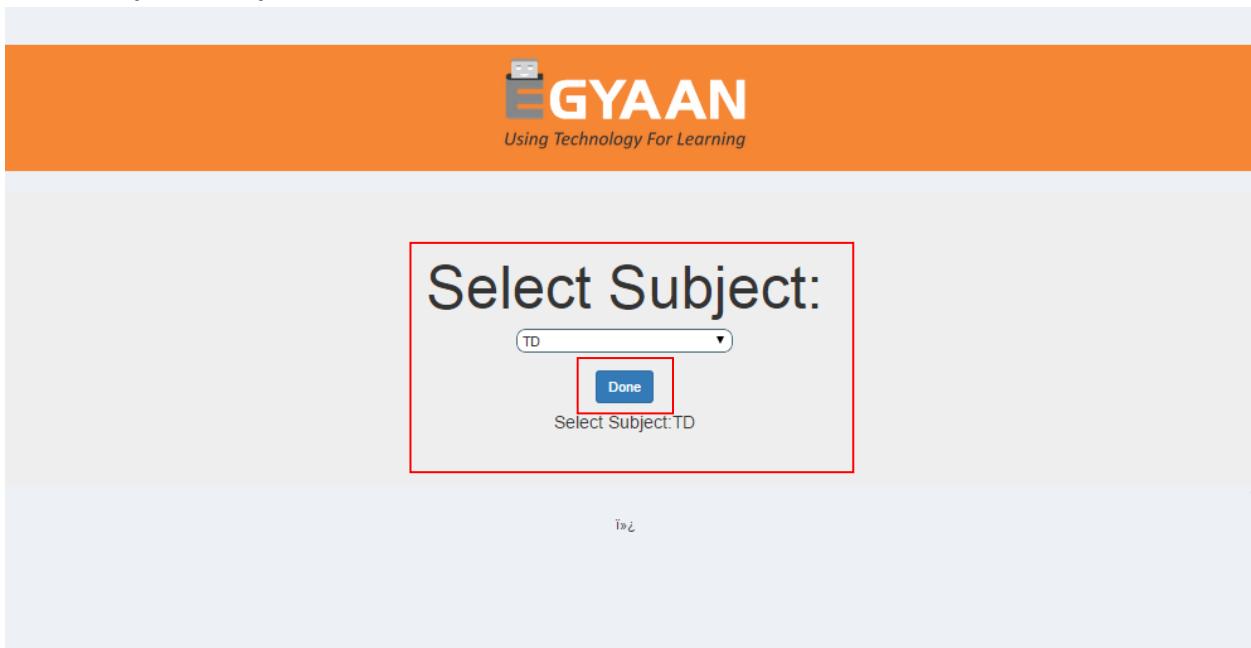
Step 2: After Logging in the Student Login the Student dashboard would be seen.

The screenshot shows the E-GYAAN Student Dashboard. At the top, the E-GYAAN logo and tagline are displayed, along with a welcome message "Welcome SAAHIL RAMESH." and a "Logout" link. A red box highlights the main dashboard area, which contains nine icons arranged in a 3x3 grid. The icons represent: Textbooks, TimeTable, Submission; Doubts, Syllabus, Result; and My Information, Notes.

Step 3: The Student can use any of the option in the Dashboard, if he selects Textbooks:



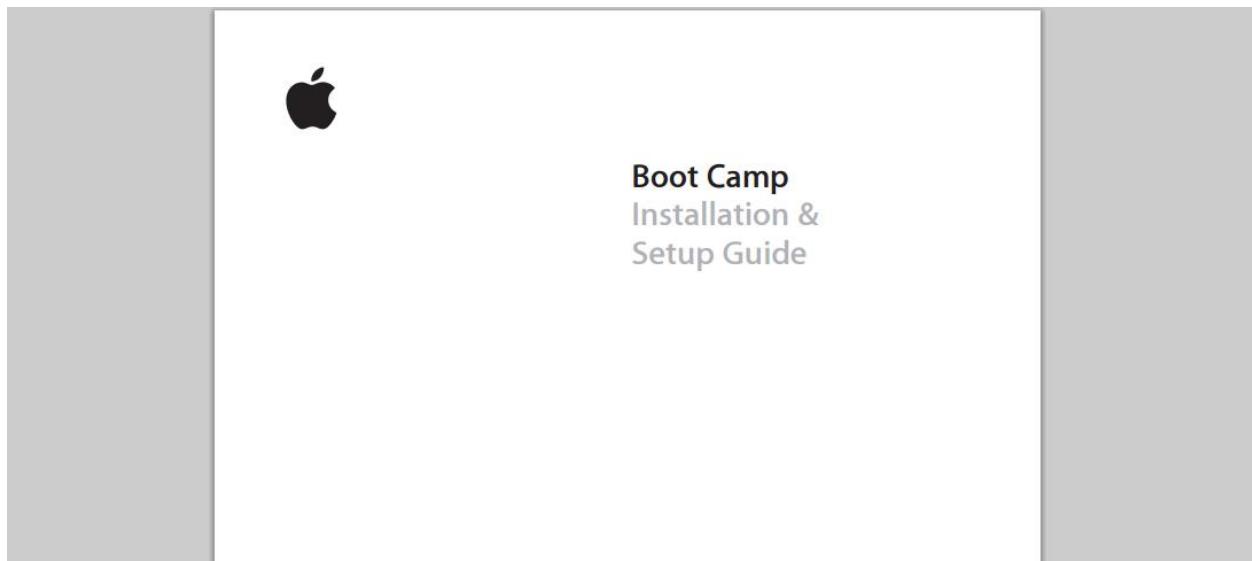
Step 4: The Student can then select the subject and click on “Done” Button to view the textbook uploaded by teacher.



Step 5: Then the student can view the books uploaded for that subject by the teacher.

The screenshot shows the EGYAAN platform interface. At the top, there is a logo with the text "EGYAAN" and the tagline "Using Technology For Learning". Below the logo, there is a table with two columns: "Sr No." and "Book Name". A single row is visible, showing "1" in the "Sr No." column and "TD1" in the "Book Name" column. To the right of the "Book Name" column, there is a red rectangular button labeled "View".

Step 6: The textbook can be downloaded on students machine and can read textbook.



Step 7: Then the student can select timetable and can see the timetable.



Step 8: After selecting the timetable the student can view the timetable.

The screenshot shows the E-GYAAN TimeTable view. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the logo, it says "TimeTable". A table displays the weekly schedule:

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10:30-11:30	C++	Java	BEE	Micro	OS	SE
11:30-12:30	ACC	RDBMS	DBA	NA	ISS	ED
12:30-1:30	C++	AJ	EDC	PCom	ACC	OS

Step 9: Then the student can Click on Doubts:



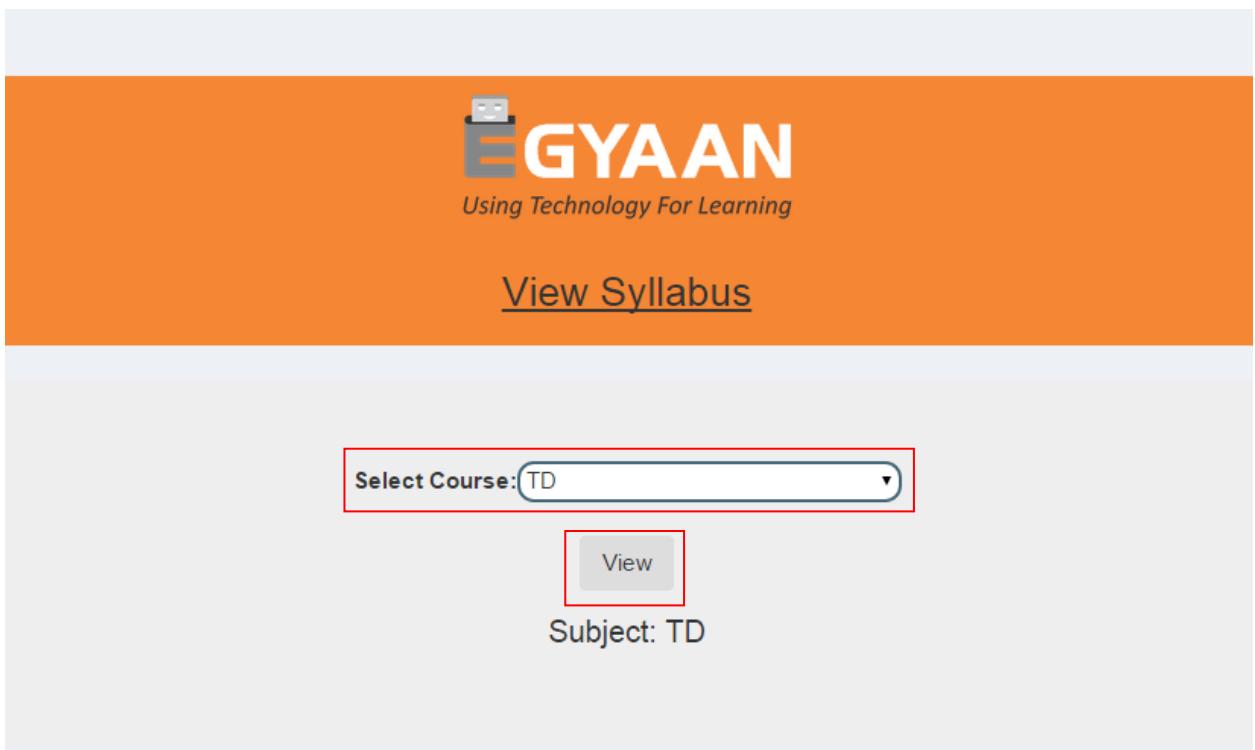
Step 10: When the student click on doubt, the student can view the answer of the doubt posted earlier and can add the doubt.

Sr No.	Title	Read More
1	What is a AutoCad?	<button>View Answer</button>

Step 11: The can click on syllabus button:



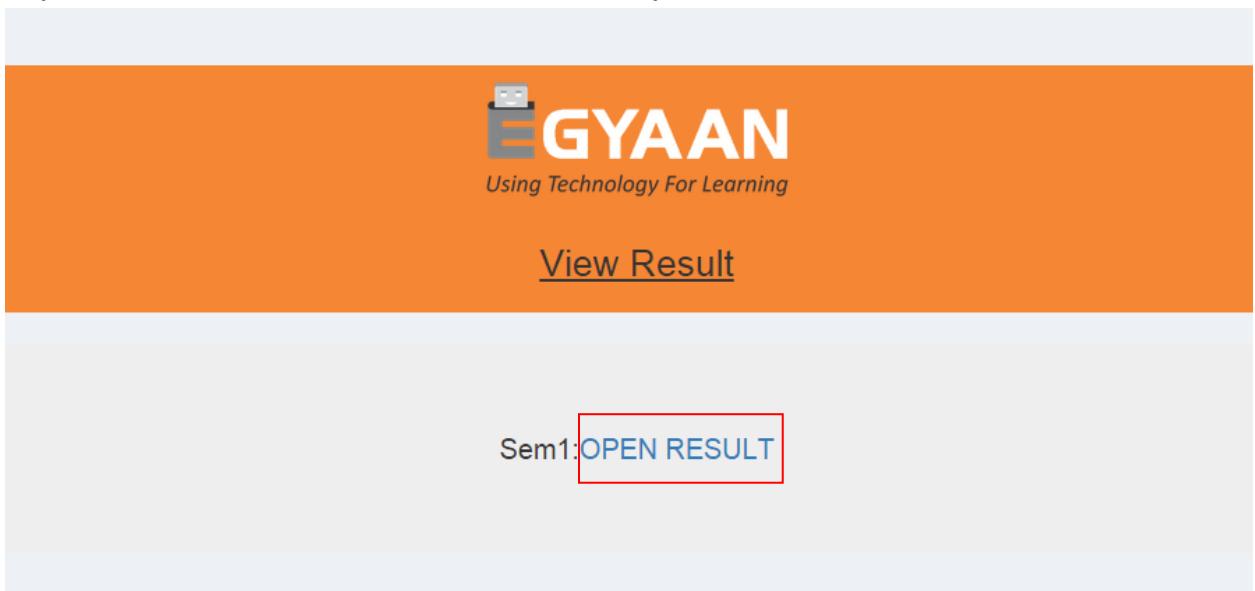
Step 12: The Student can select the course and click on “View” Button to see the Syllabus of selected Course.



Step 13:The student can click on the result button.



Step 14: The student can click on “OPEN RESULT” to open the result.



Step 15: The student can view result uploaded by Teacher.

K.J Somaiya Polytechnic, Mumbai - Result Sheet Winter 2012 (Restructured)											
Winter 2012											
Diploma in Computer Engineering											05-Jan-13
1 . FCG06111 KADAM ANIKET VILAS:											Mrks: 116/ 250
Course: AE010101	CO10402										FCO:1
TS(30):	054	038									
TH(70):	35	44									
TW(25):	--	18#									
Or(25):	--	11#									
Total:	040	076									
Credit:	3	5									
FCGG06134 PATIL AMIT NAKUL:											Mrks: 32/ 325
Course: AE06114	CO06403	CO06504									Cr: 169 + 0 = 169
TS(30):	038	058	058								
TH(70):	ABF	ABF	ABF								
TW(25):	--	17#	--								
Or(25):	--	--	--								
Total:	003	022	000								
Credit:	0	0	0								
3 . FCG06152 SHIRSAT MAYUR SURESH:											Mrks: 313/ 1525
Course: AE06114	AE10111	AE11106	AE11107	CO06206	CO06301	CO06302	CO06407	CO06511	CO06603	CO06701	CO10402
TS(30):	12#	07#	01#	14#	09#	09#	05#	01#	13#	19#	08#
TH(70):	ABF										
TW(25):	--	15#	--	16#	--	17#	21#	15#	16#	18#	18#
Or(25):	--	--	--	--	--	11# (P)	17#	15#	19# (P)	--	12#
Total:	012	022	001	014	025	006	033	046	031	048	037
Credit:	0	0	0	0	0	0	0	0	0	0	0
4 . FCG07149 ROZODKAR DARSHANA PRAKASH:											Mrks: 523/ 1125
Course: CO06501	CO06508	CO10407	CO10507	CO10510	CO10603	CO10604	CO10605	CO10606			Cr: 112 + 21 = 133
TS(30):	03#	11#	16	08	—	15	05	07	—		
TH(70):	33	ABF	25	23F	—	32	21F	38	—		
TW(25):	14#	—	19	20	10	17	18	17	17	20	
Or(25):	15# (P)	—	18	18	30 (50)	19# (P)	15# (P)	12#	19		
Total:	068	011	078	069	040	083	063	074	039		
Credit:	0	0	5	0	2	5	0	4	5		

Step 16: The student can click on Notice Board:



Step 17: The student can see the list of notices uploaded by the HOD, and can click on view button to see the notice:

The screenshot shows the E-GYAAN platform interface. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the logo, the title "Notice Board" is displayed. Underneath, a table titled "Common Notice Board" lists two notices. The first notice has a "View" button highlighted with a red box. The second notice also has a "View" button.

Sr No.	Title	Read More
1	Test2	View
2	Common	View

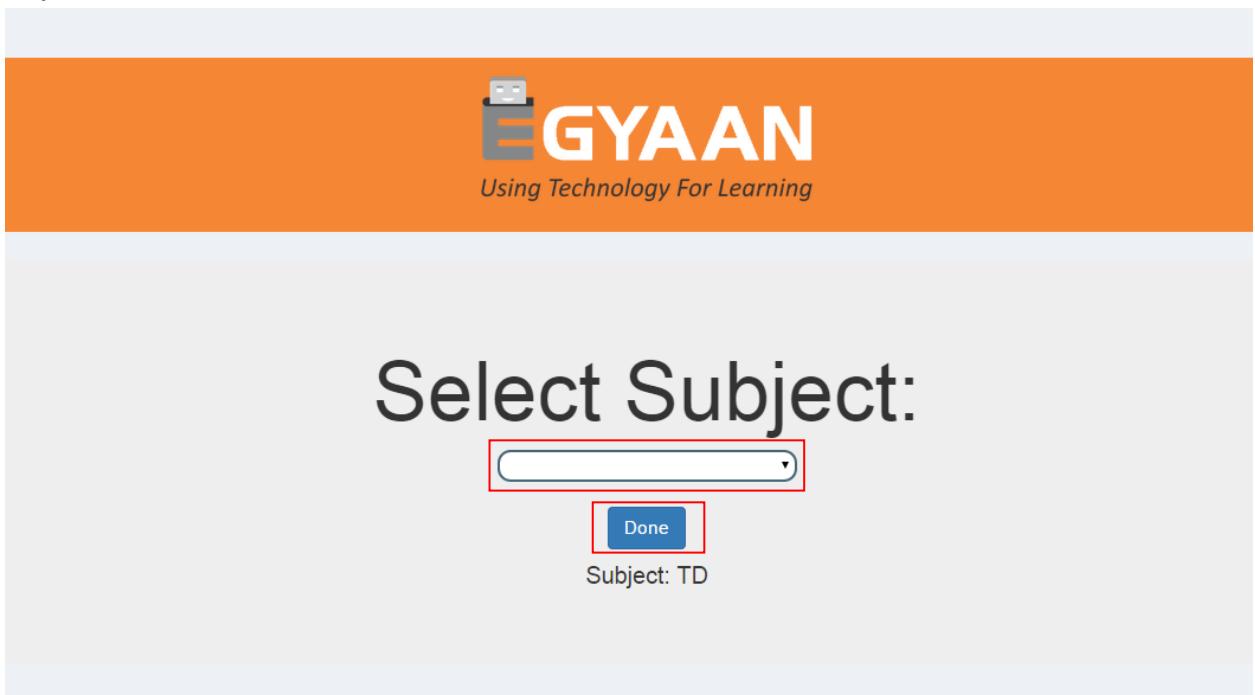
Step 18: After clicking on View button the student can see notice:

The screenshot shows the E-GYAAN platform interface after a notice has been viewed. The top section remains the same with the logo and "Notice Board" title. Below, the notice details are shown. The notice title is "Common" and the notice content is "Common notice". There is also a link "Attached File :Attached Notice".

Step 19: The student can select Notes:

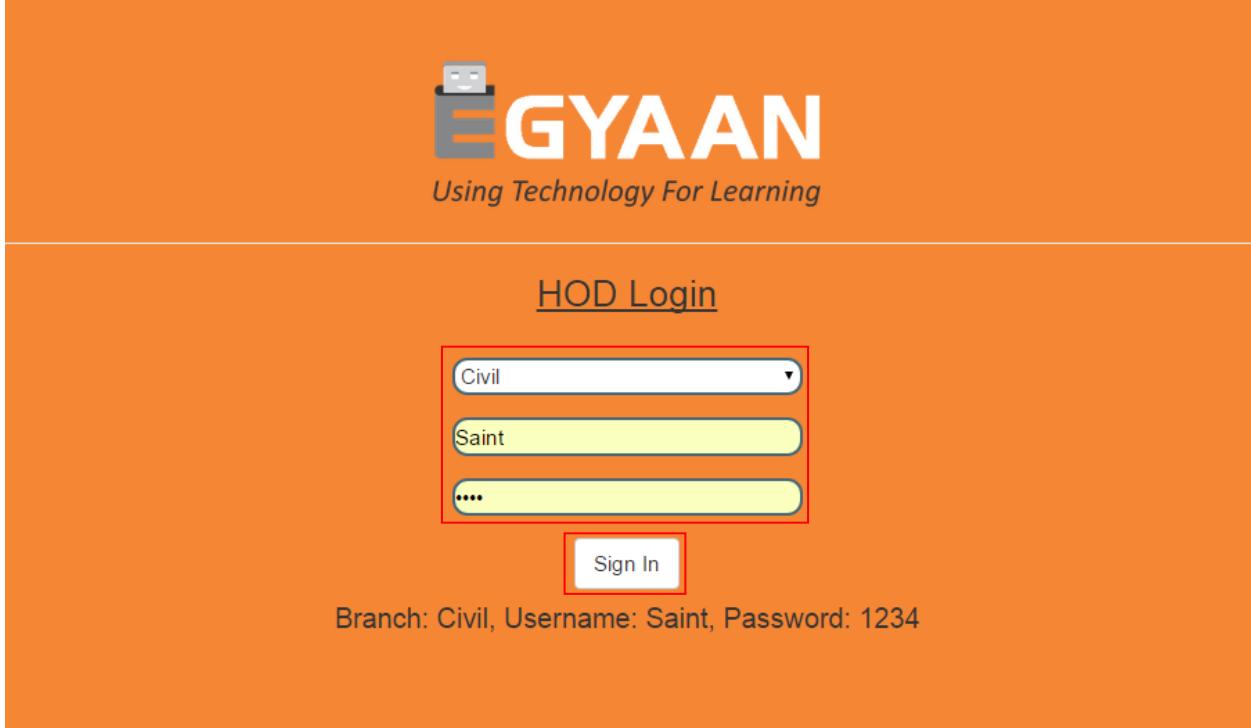


Step 20: The student can select the course and click on “Done” Button to see the notes.

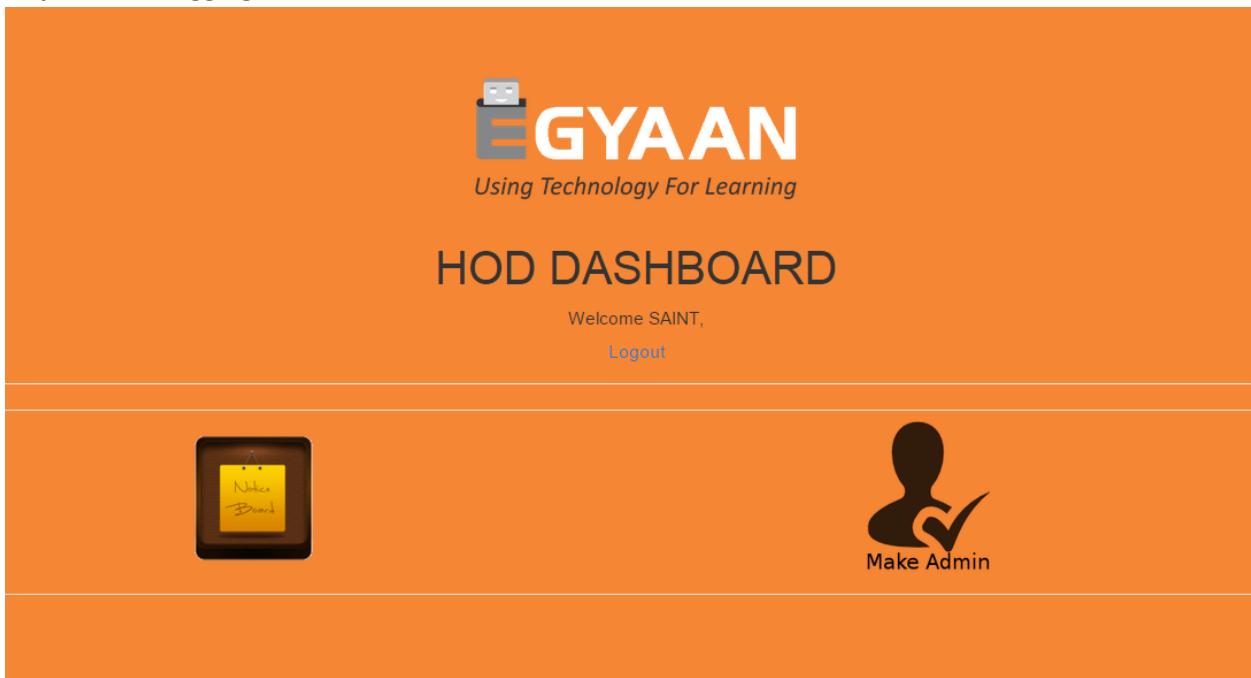


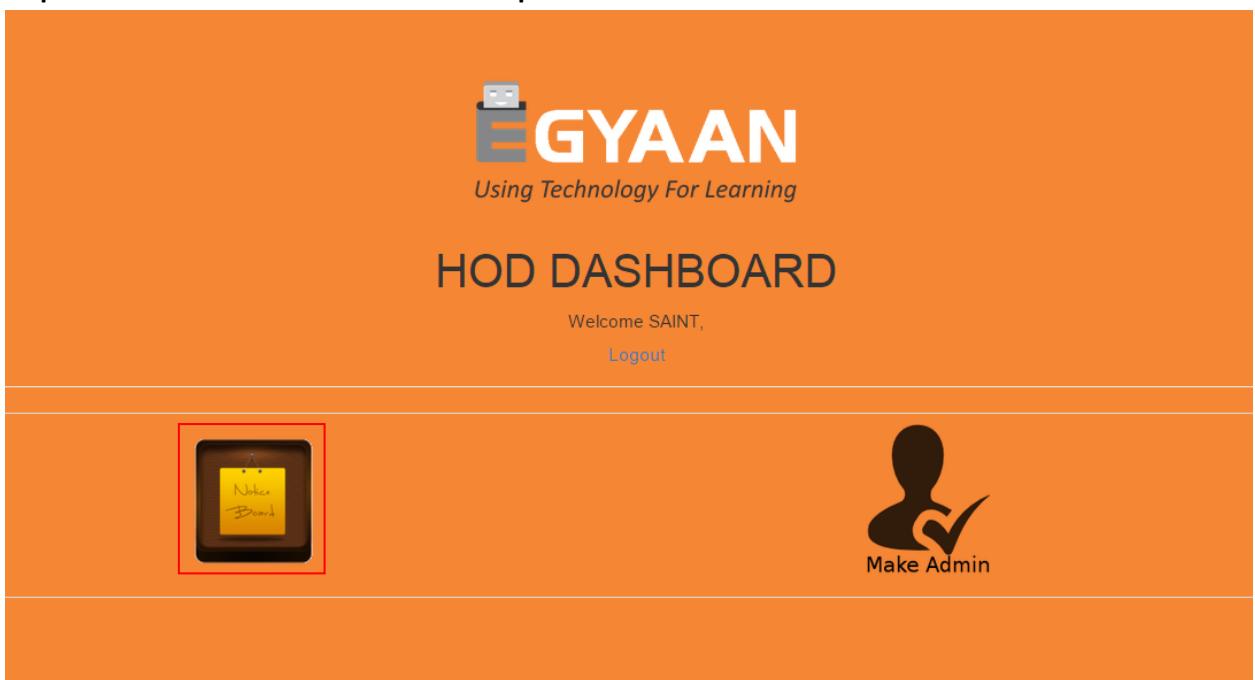
H.O.D. Login

Step 1: First the Username and password of the HOD should be added and the course should be selected to Login, and “Sign In” button should be clicked to Login.



Step 2: After Logging in the HOD can see his/her Dashboard.



Step 3: The HOD can select Notice board Option:**Step 4: The HOD can view the already added notices, edit them and can add a new Notice by Clicking on "Add Notice" button.**

Common Notice Board			
Sr No.	Title	Read More	Edit
1	Test2	View	Edit
2	Common	View	Edit

Branch Notice Board			
Sr No.	Title	Read More	Edit
1	Civil Branch	View	Edit

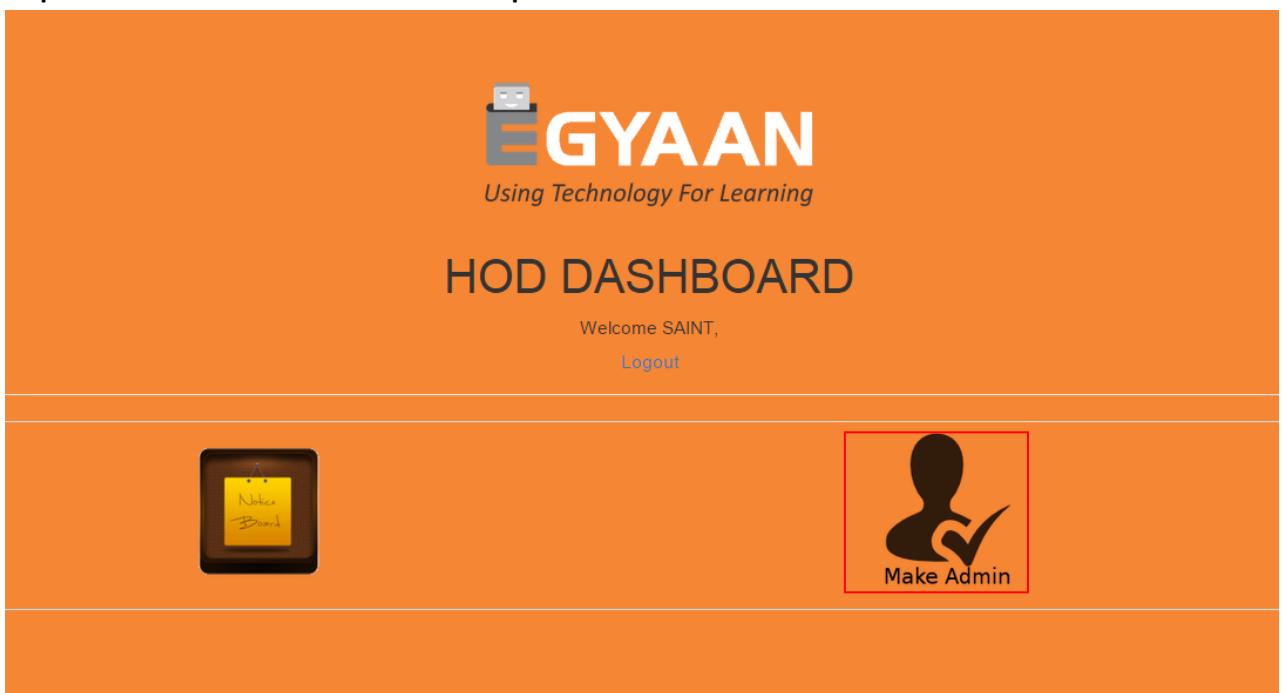
[Add Notice](#)

Step 5: The HOD can type the Title of notice in textbox and type the Notice in Textarea he/she can choose a file if any to be uploaded and can select it is Common notice or Branch Notice, and can add it to urgent notice by ticking the urgent notice checkbox, and add notice by clicking on “Add Notice” button.

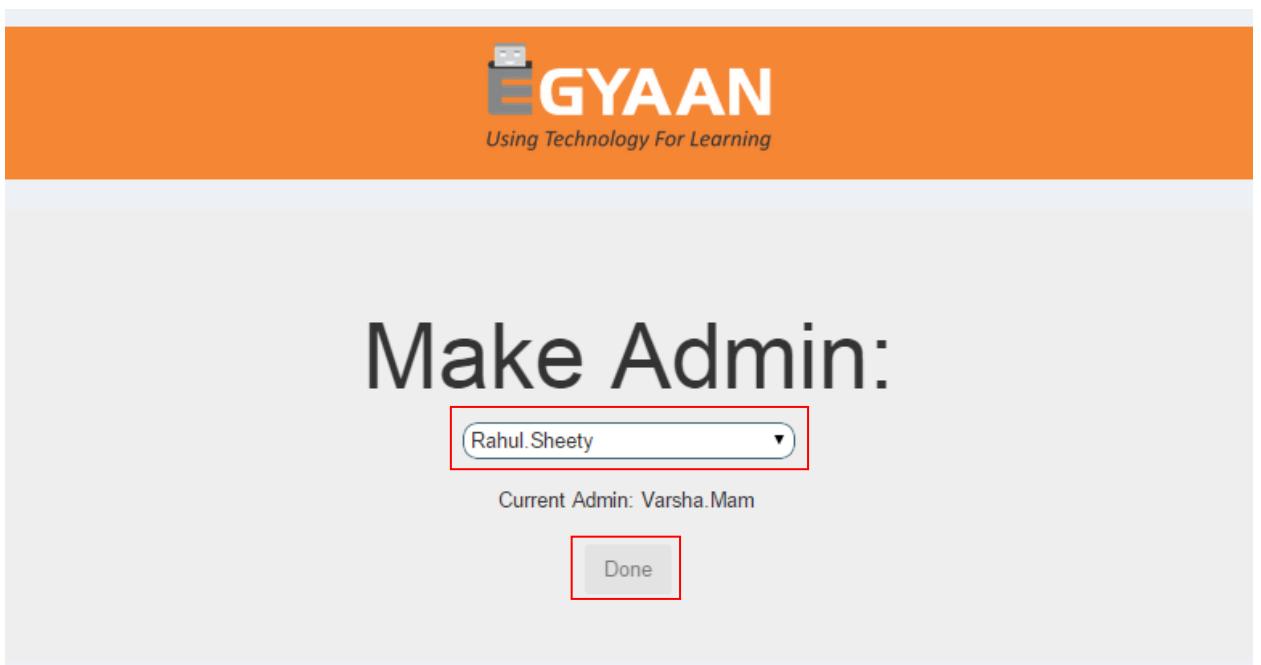
The screenshot shows the 'Add Notice' interface. At the top, there's a logo with the text 'EGYAAN' and 'Using Technology For Learning'. Below the logo, the title 'Add Notice' is centered. The main form area contains the following fields:

- A text input field labeled 'Title:' followed by a placeholder 'Title'.
- A large text area labeled 'Notice'.
- A file selection input labeled 'Select File:' with a placeholder '(Optional)' and a 'Choose File' button. The message 'No file chosen' is displayed.
- Two radio buttons for selecting the notice board:
 - Common Notice Board
 - Branch Notice Board
- A checkbox for marking the notice as 'Urgent Notice'.
- A green 'Add Notice' button at the bottom of the form.

Step 6: The HOD can select Make Admin option:



Step 7: The HOD can select the Teacher from drop down and click on “Make Admin” button to make the admin.



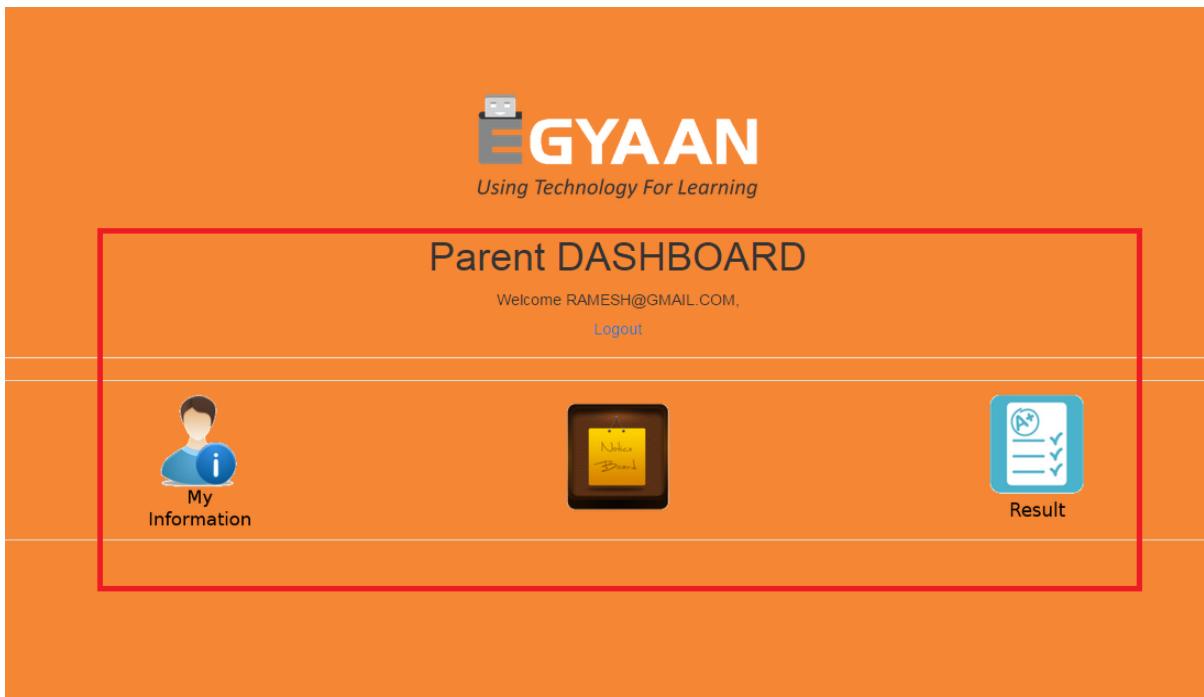
PARENT LOGIN:

Step1: For login enter correct username and password as shown below.

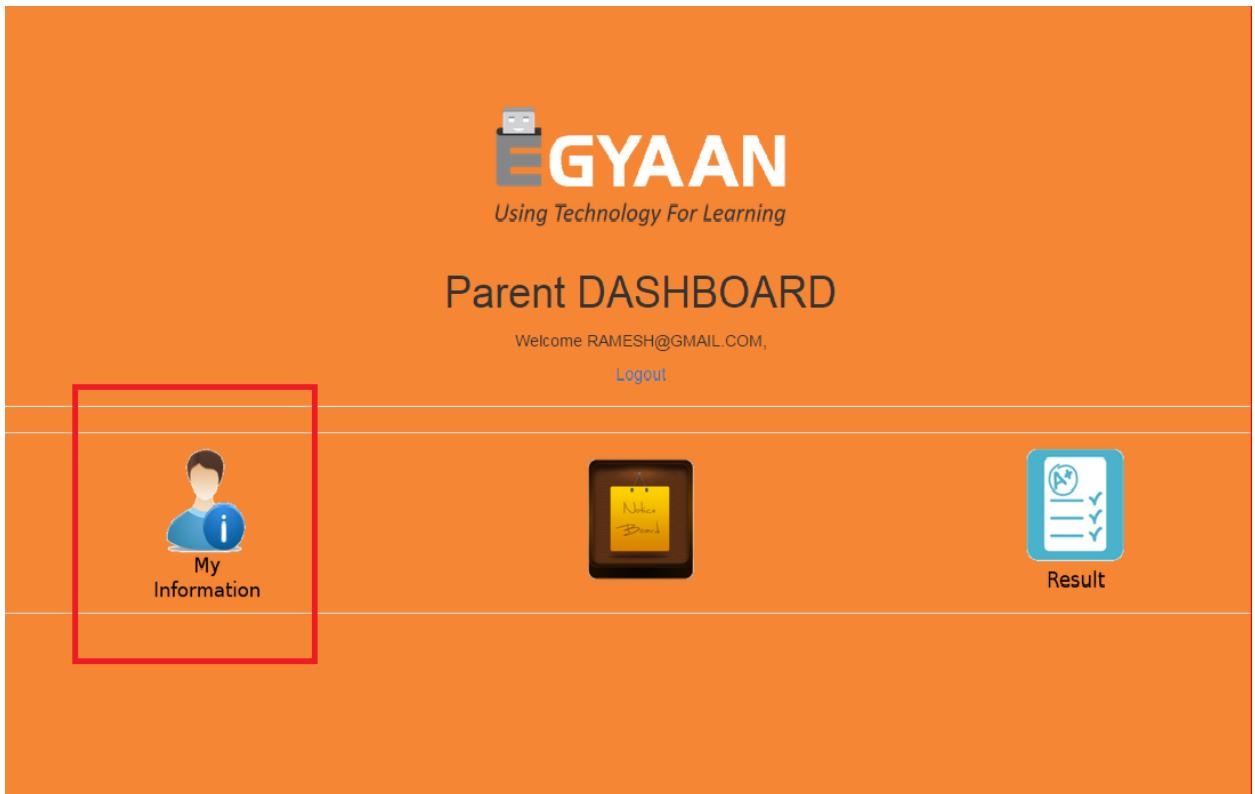


Step2: Click on "SIGN IN" button to continue your login.

Step3: As soon as you sign in “PARENT DASHBOARD” will appear on successful login as shown below.



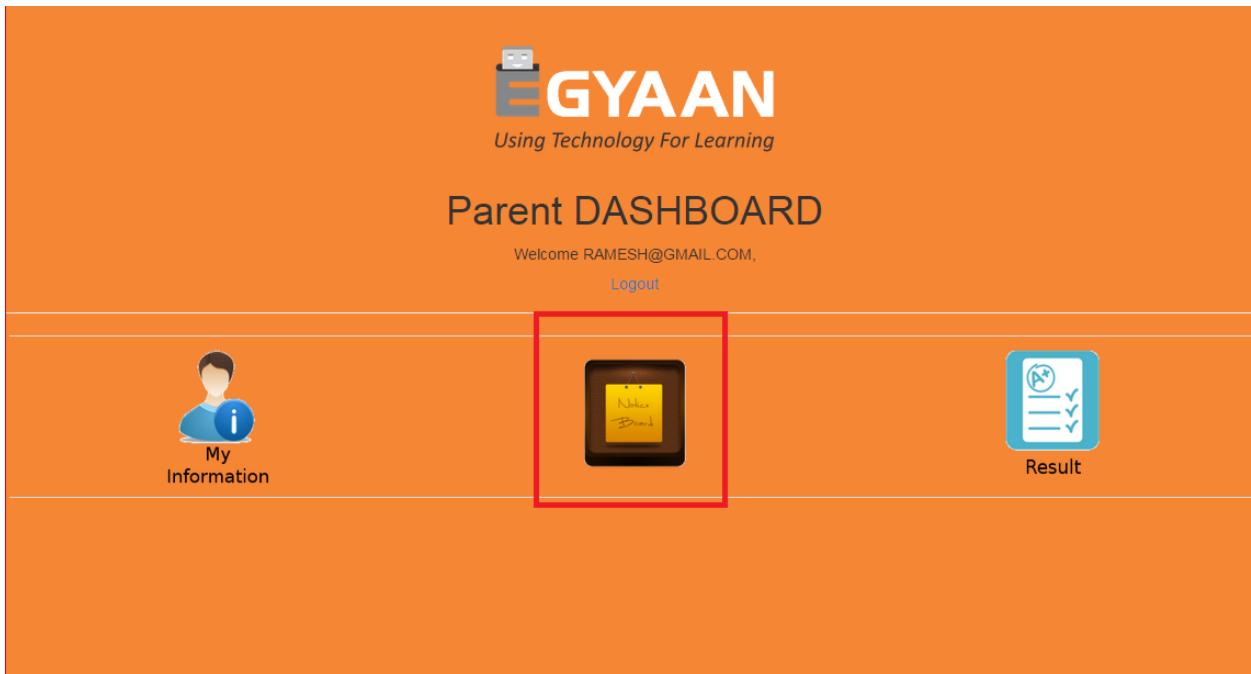
Step4: To view the information of your pupil click on “MY INFORMATION” as shown below.



Step5: As soon the parent clicks on “MY INFORMATION” the information related to your pupil is displayed as shown below.



Step6: To access the noticeboard click on “NOTICEBOARD” as shown below.



Step7: As soon as the parent clicks on “NOTICEBOARD” all the notices shall be displayed as shown below.

A screenshot of the "Notice Board" page. The header includes the E-GYAAN logo and "Notice Board". Below is a table titled "Common Notice Board" with two rows of data. The columns are "Sr No.", "Title", and "Read More".

Sr No.	Title	Read More
1	Test2	<button>View</button>
2	Common	<button>View</button>

Step8: To further read the notice click on “VIEW” as shown below.

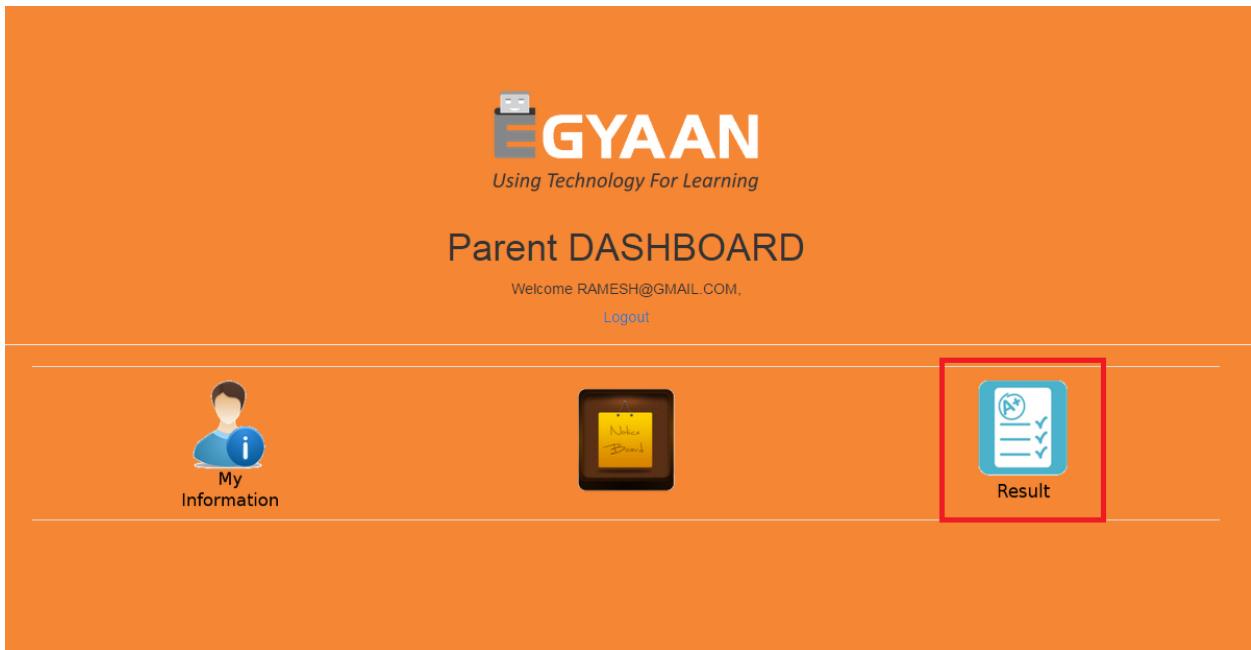
The screenshot shows the E-GYAAN Notice Board interface. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the logo, the title "Notice Board" is displayed. A table titled "Common Notice Board" lists two notices. The first notice has a "View" button highlighted with a red box. The second notice also has a "View" button.

Sr No.	Title	Read More
1	Test2	<button>View</button>
2	Common	<button>View</button>

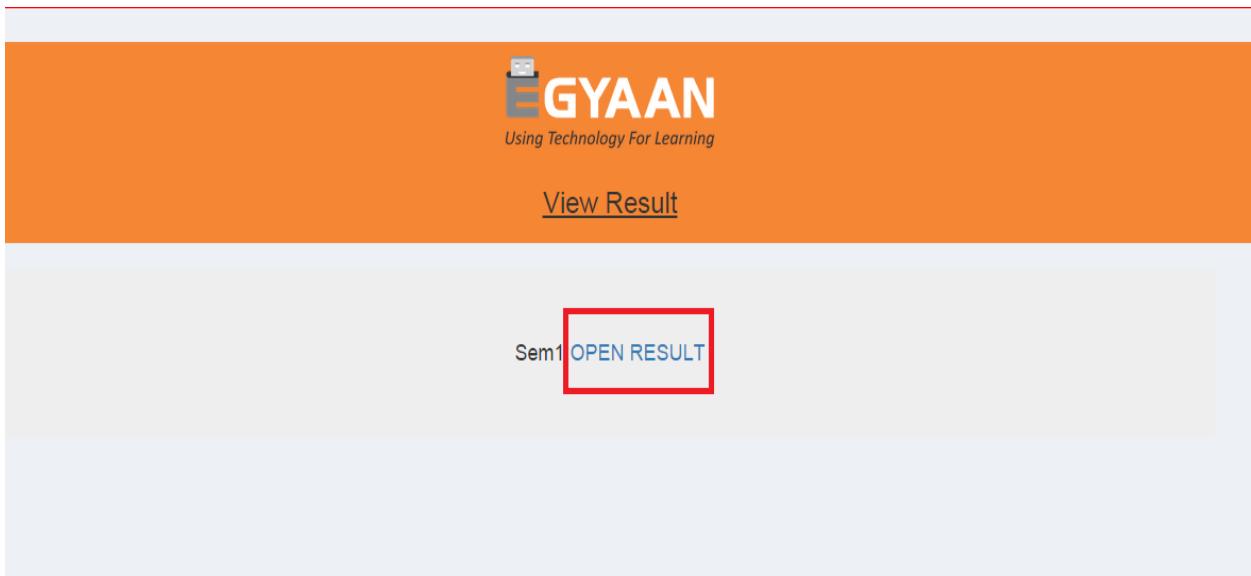
Step9: As soon as the VIEW button is clicked the notice is displayed with all the details as shown below.

The screenshot shows the E-GYAAN Notice Board interface after a notice has been viewed. The "View" button for the first notice is highlighted with a red box. The notice details are displayed in a box: "Title: Test2", "Notice: Common NoticeBoard", and "Attached File :Attached Notice".

Step10: To view the result click on “RESULT” as shown below.



Step11: As soon as RESULT is clicked , further click on “OPEN RESULT” to vie the result.

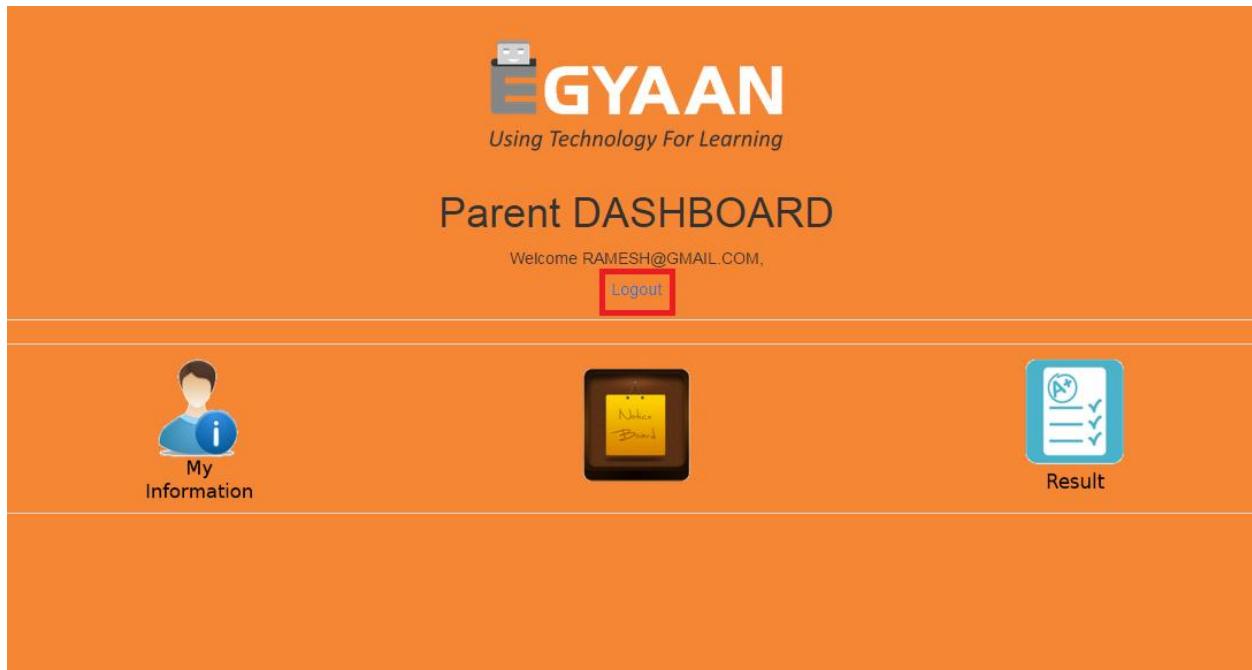


Step12: As soon as you click on “OPEN RESULT” result of the particular semester is displayed as soon below.

K.J Somaiya Polytechnic, Mumbai -											
Result Sheet Winter 2012											
(Restructured)											
Diploma in Computer Engineering											
1 . FCOG06117 KADAM ANIKET VILAS:	Course: AE10101	CO10402	05#	03#	35	44	18#	11#	040	076	05-Jan-13
TS(30):	05#	03#	06#	06#	ABF	ABF	ABF	ABF	003	023	Mrks: 116/ 250
TH(70):	--	--	--	--	--	--	--	--	003	023	Cr: 171 + 8 = 179
Or(25):	--	--	--	--	--	--	--	--	003	023	FCO:1
Total:	040	076	003	023	006	006	006	006	033	046	Mrks: 32/ 325
Credit:	3	5	0	0	0	0	0	0	031	048	Cr: 169 + 0 = 169
2 . FCOG06134 PATIL AMIT NAKUL:	Course: AE06114	CO06403	CO06504	03#	06#	17#	17#	003	023	006	Mrks: 313/ 1525
TS(30):	03#	06#	06#	ABF	ABF	ABF	ABF	ABF	003	023	Cr: 126 + 0 = 126
TH(70):	ABF	ABF	ABF	--	--	--	--	ABF	ABF	ABF	ABF
Tw(25):	--	--	--	--	--	--	--	ABF	ABF	ABF	ABF
Or(25):	--	--	--	--	--	--	--	ABF	ABF	ABF	ABF
Total:	003	023	006	003	023	006	006	006	033	046	038
Credit:	0	0	0	0	0	0	0	0	0	0	0
3 . FCOG06152 SHIRSAT MAYUR SURESH :	Course: AE06114	AE10111	AE11106	AE11107	CO06206	CO06301	CO06302	CO06407	CO06511	CO06603	CO06701
TS(30):	12#	07#	01#	14#	09#	06#	05#	08#	01#	13#	19#
TH(70):	ABF	ABF	ABF	ABF	ABF	ABF	ABF	ABF	ABF	ABF	ABF
Tw(25):	--	--	--	--	--	--	--	17#	21#	15#	16#
Or(25):	--	--	--	--	--	--	--	11# (P)	17#	15#	18#
Total:	012	022	001	014	025	006	006	006	031	046	037
Credit:	0	0	0	0	0	0	0	0	0	0	0
4 . FCOG07149 ROZODKAR DARSHANA PRAKASH:	Course: CO06501	CO06508	CO10407	CO10507	CO10510	CO10603	CO10604	CO10605	CO10606	CO10607	Mrks: 523/ 1125
TS(30):	03#	11#	16	08	--	15	05	07	--	--	Cr: 112 + 21 = 133
TH(70):	33	ABF	25	23F	--	32	21F	38	--	--	
Tw(25):	14#	--	19	20	10	17	18	17	20	12	
Or(25):	16# (P)	--	18	18	30	(50)	19 (P)	19 (P)	12	19	
Total:	066	011	078	069	040	083	063	074	039	039	
Credit:	0	0	5	0	2	5	0	4	5	5	

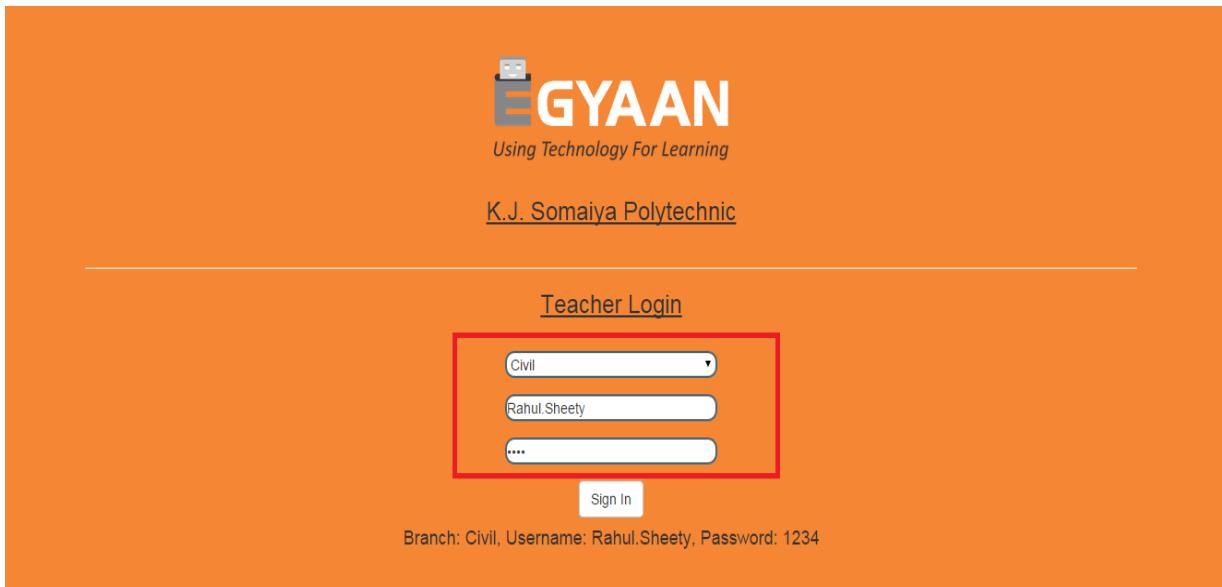
Note: TS:Test, TH:Theory,TW:Termwork,OR: Oral,if not (P):Practical. Marks following heads :max. marks in that head if not mentioned exceptionally. # Marks Carried forward,F Failed Head *- Course condo. UNDERLINED Courses

Step13: To logout from the “PARENT LOGIN” click on “LOGOUT” as shown below.



TEACHER LOGIN:

Step 1: For logging in, the Teacher must select his/her branch and enter the correct username and password.



Step 2: Click on the “ Sign In ” button to continue logging in.

Step 3: To view and upload textbooks select the “Textbooks” option.



Step 4: You can upload the book by entering the book name and then choosing the file from the browse file option.

The screenshot shows the E-GYAAN platform interface. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the logo, a message says "Your Course is : TD". There is a red rectangular box highlighting a form area. Inside this box, there are two input fields: "Enter the Book Name:" with a placeholder "Enter Bookname" and "Upload Book:" with a placeholder "Choose file | No file chosen". Below these fields is a "Add Book" button. Below this form, there is a table with one row. The table has columns for "Sr No.", "Book Name", "View", and "Delete". The first row contains "1", "TD1", a "View" link, and a "Delete" button.

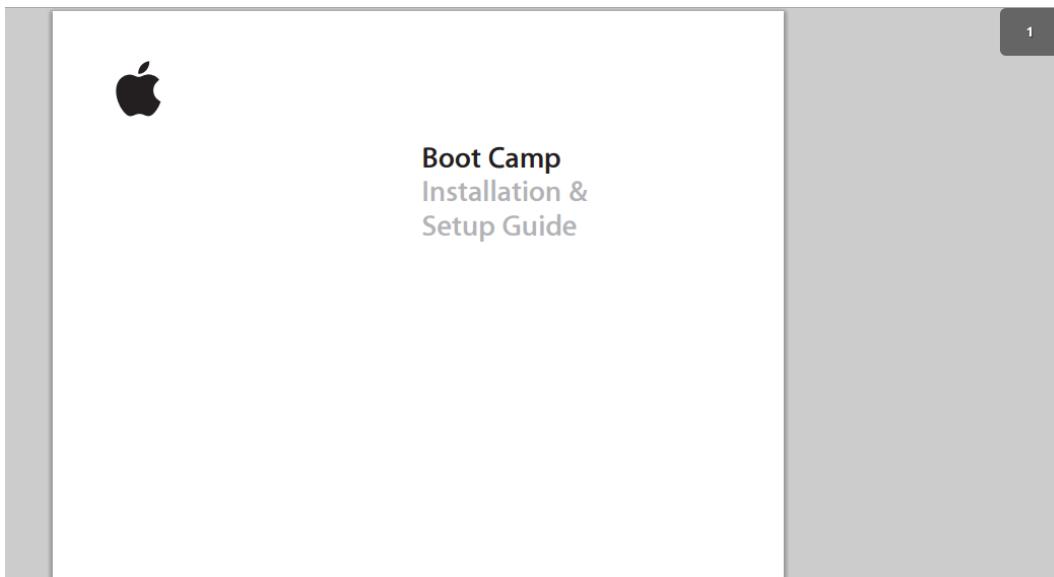
Sr No.	Book Name	View	Delete
1	TD1	View	Delete

Step 5: Then click on the “Add Book” button to upload the book.

Step 6: To view the book that you have uploaded previously click on the “View” button.

The screenshot shows the E-GYAAN platform interface. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the logo, a message says "Your Course is : TD". There is a red rectangular box highlighting the "View" link in the table below. The table has columns for "Sr No.", "Book Name", "View", and "Delete". The first row contains "1", "TD1", a blue "View" link, and a "Delete" button.

Sr No.	Book Name	View	Delete
1	TD1	View	Delete



Step 7: For deleting the book that you have previously uploaded book click on the delete button.

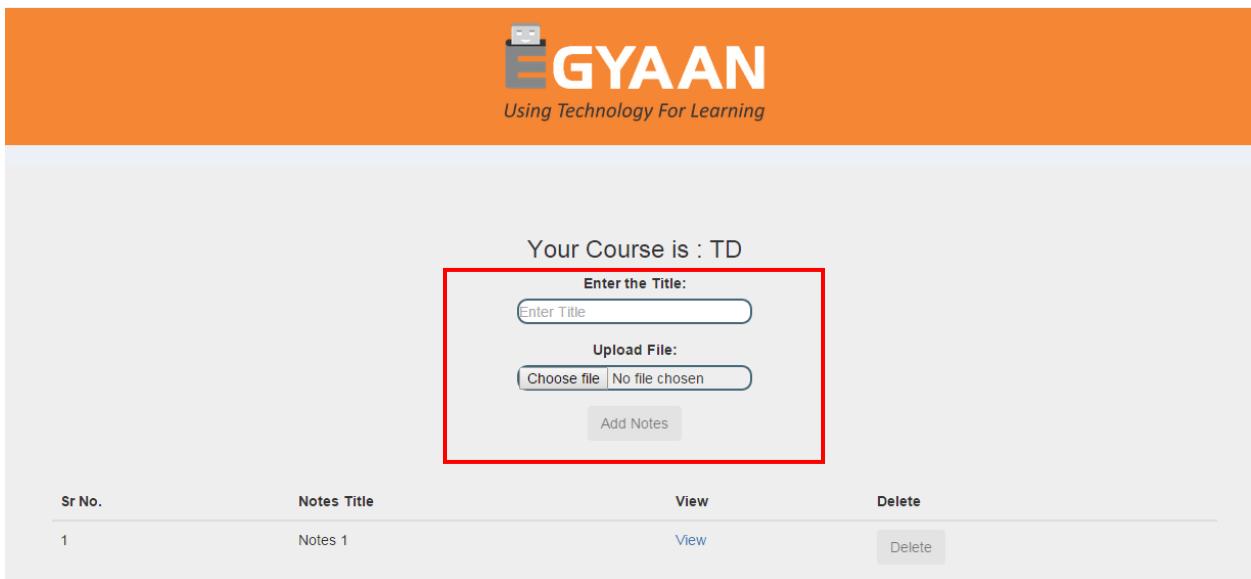
The screenshot shows the EGYAAN website interface. At the top, there is a logo with the text "EGYAAN" and "Using Technology For Learning". Below the header, it says "Your Course is : TD". There are input fields for "Enter the Book Name:" and "Upload Book:", both currently empty. A "Add Book" button is located below these fields. Below this, there is a table with a single row:

Sr No.	Book Name	View	Delete
1	TD1	View	Delete

Step 8: The next feature is the “Notes” section.



Step 9: Now, you will have to enter the title of the notes and then choose the notes i.e. the file using the browser.



Step 10: Now press on the “Add Notes” button to add the book.

Step 11: To view the notes, click on the “View” button as shown below-

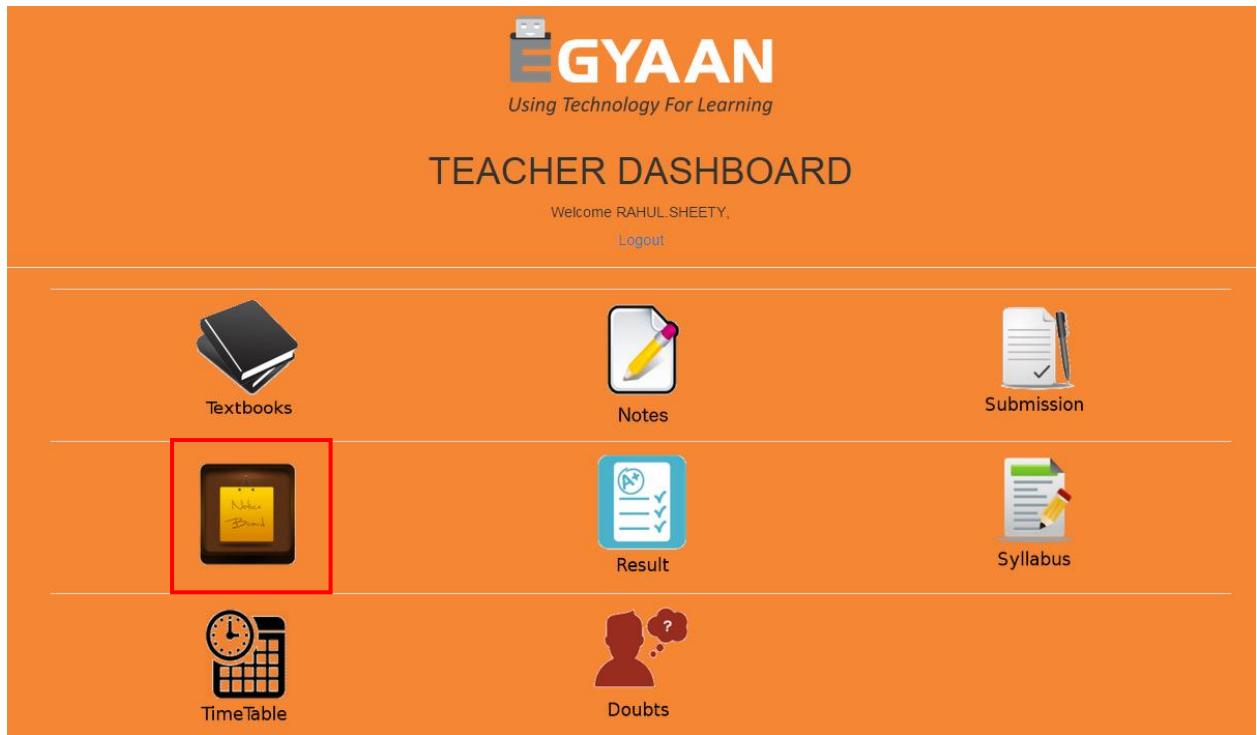
The screenshot shows the E-GYAAN platform interface. At the top, there is a logo with a book icon and the text "EGYAAN" followed by the tagline "Using Technology For Learning". Below the header, a message says "Your Course is : TD". There is a form to "Enter the Title:" with a placeholder "Enter Title". An "Upload File:" section shows a button to "Choose file" with "No file chosen". A "Add Notes" button is also present. Below this, a table lists a single note: "Sr No." (1), "Notes Title" (Notes 1), "View" (button highlighted with a red box), and "Delete".

For eg:

A large watermark image is displayed over the page. It features a dark grey vertical bar on the right side containing the text "CHAPTER" at the top and the number "1" in a large, bold, serif font below it. To the left of this bar, the words "INTRODUCTION" and "&" are stacked vertically, and "MOTIVATION" is positioned below them, all in a large, bold, serif font.

Step 12: To delete any notes that you have uploaded earlier, click on the “Delete” button

Step 13: The next feature is the “Notice Board” section



Step 14: When you open this section, the following page will be displayed-

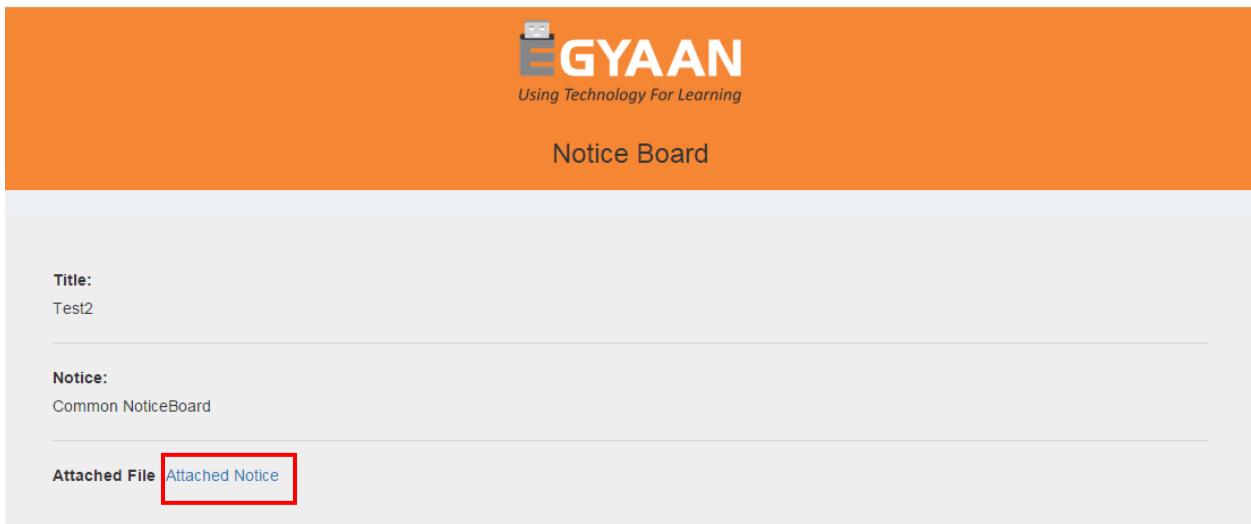
Step 15: To view the previous notices listed below, click on the “View” button. There are two types of notices: Common and Branch

The screenshot shows the 'Notice Board' page. At the top, it displays the EGYAAN logo with the tagline 'Using Technology For Learning'. Below the logo, it says 'Notice Board'. The page is divided into two sections: 'Common Notice Board' and 'Branch Notice Board'. The 'Common Notice Board' section contains a table with three columns: 'Sr No.', 'Title', and 'Read More'. The first row has '1' in 'Sr No.', 'Test2' in 'Title', and a 'Read More' button. The second row has '2' in 'Sr No.', 'Common' in 'Title', and a 'View' button. The 'View' button in the second row is highlighted with a red rectangular box. The 'Branch Notice Board' section contains a similar table with the same three columns. The first row has '1' in 'Sr No.', 'Civil Branch' in 'Title', and a 'Read More' button. The second row has a 'View' button.

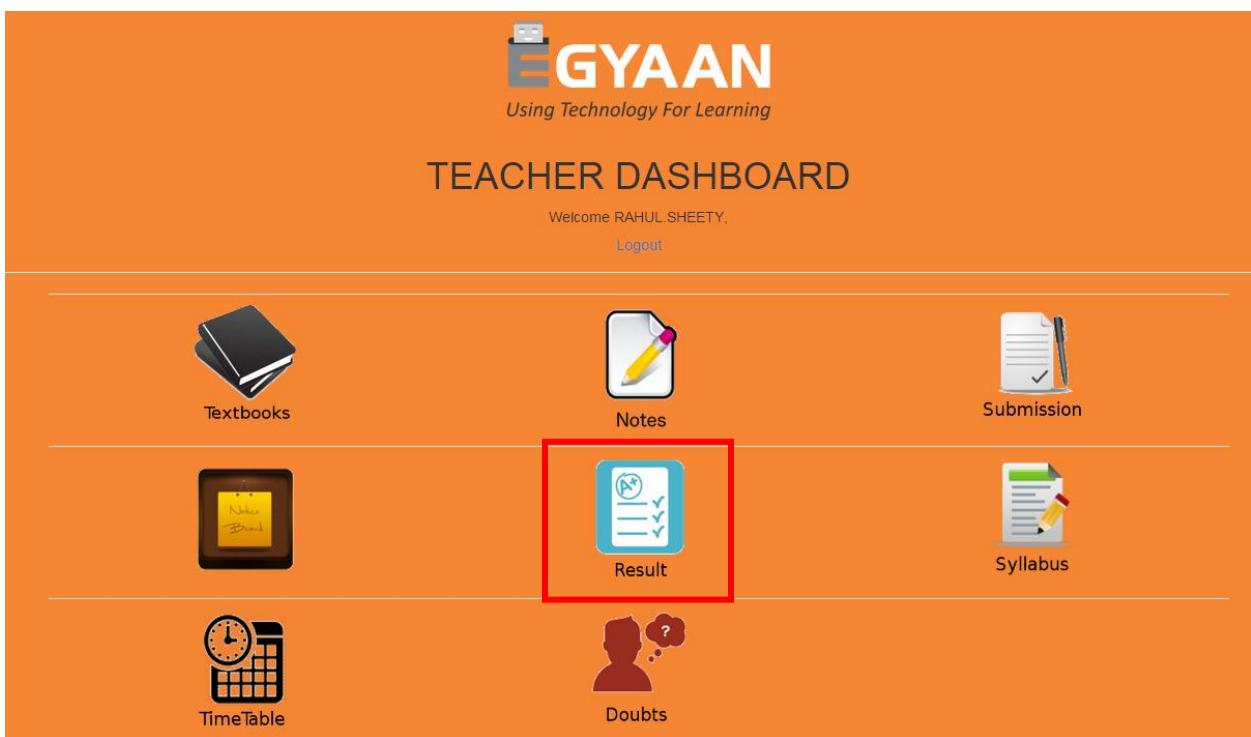
Common Notice Board		
Sr No.	Title	Read More
1	Test2	View
2	Common	View

Branch Notice Board		
Sr No.	Title	Read More
1	Civil Branch	View

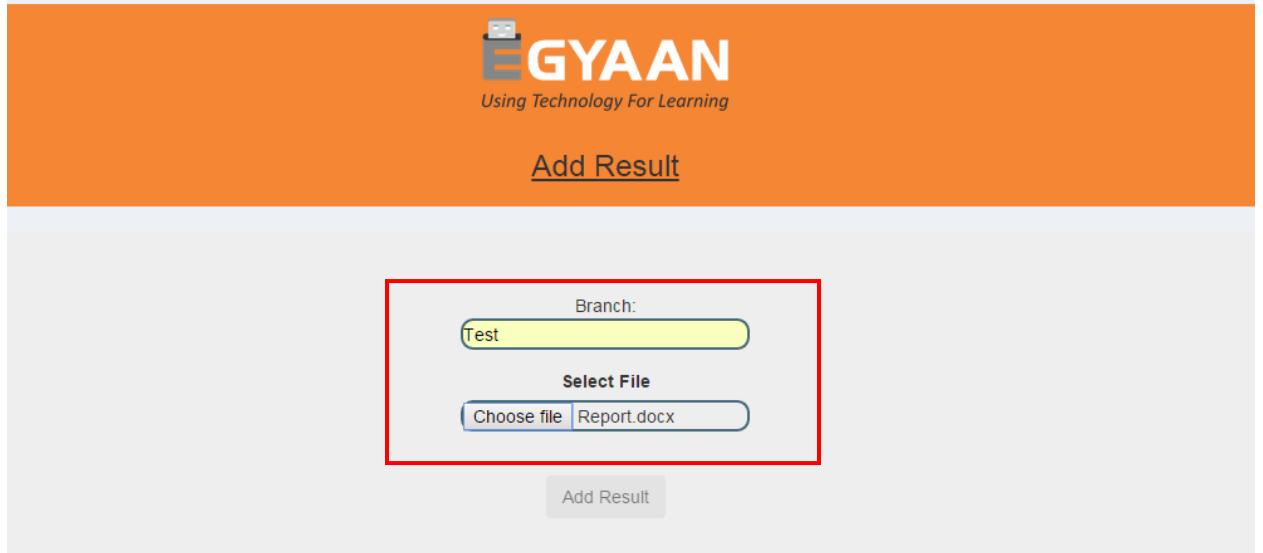
Step 16: To view the notice click on “Attached Notice”



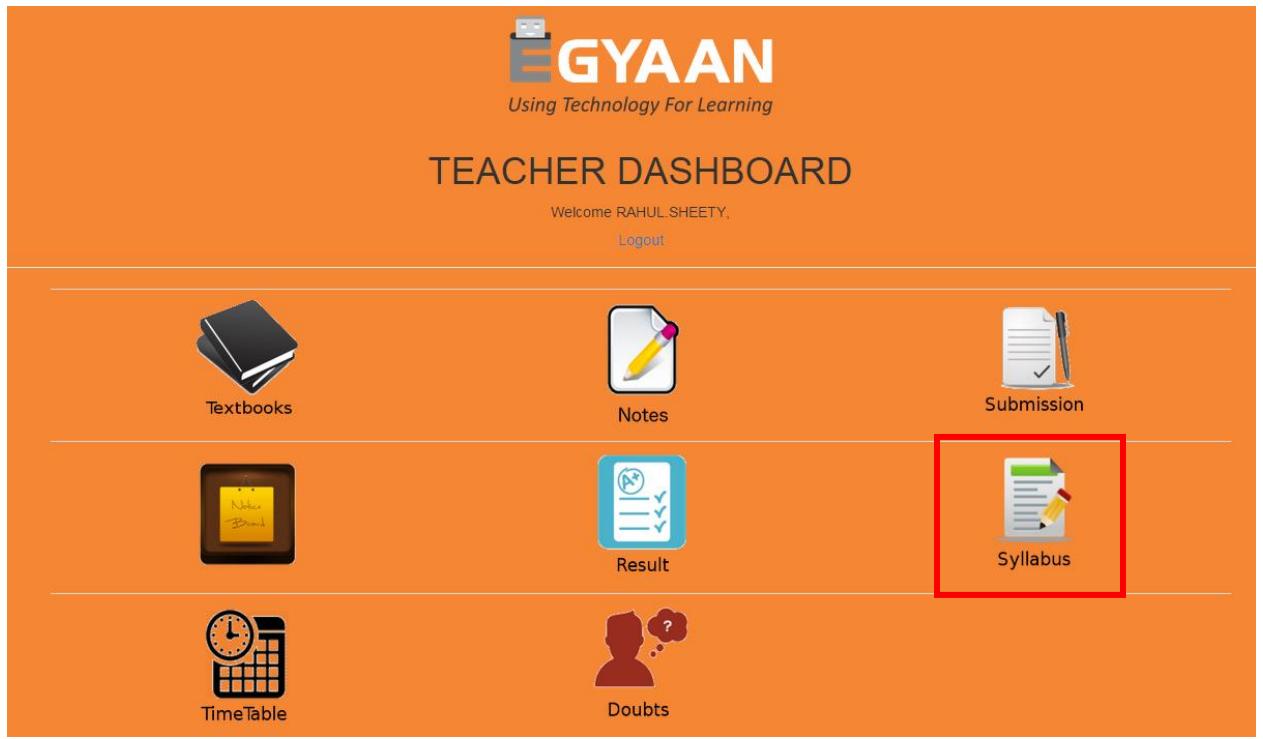
Step 17: The next feature is the “Result” section.



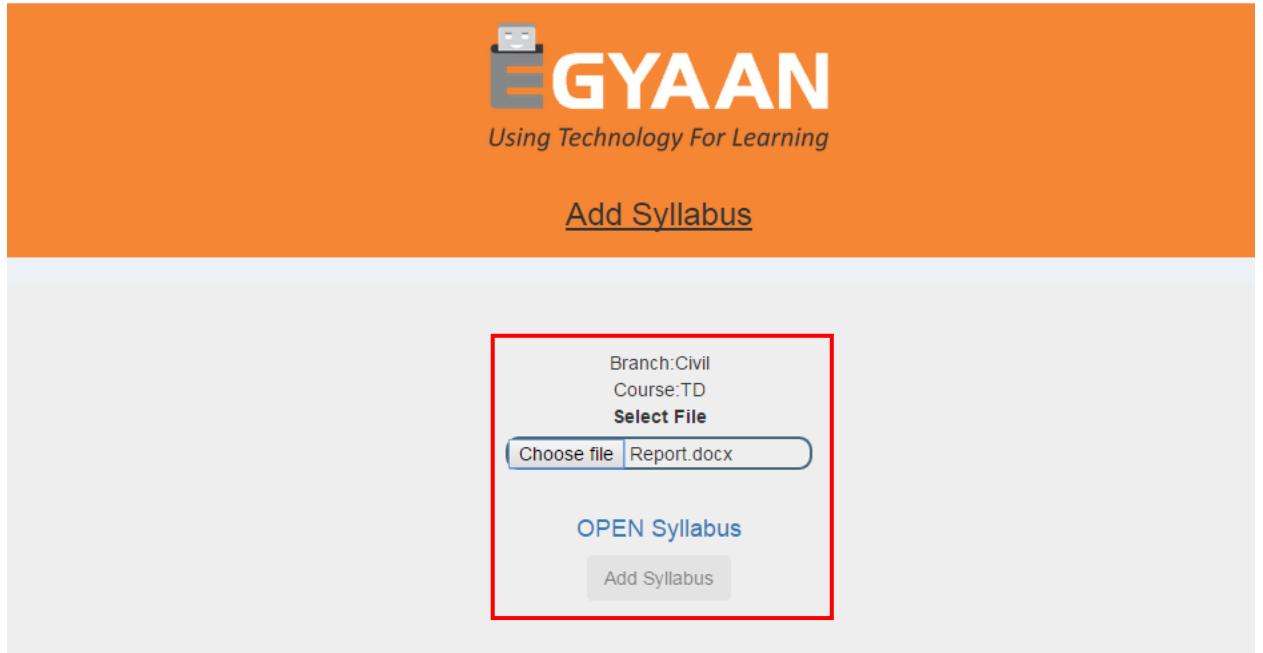
Step 18: Enter the appropriate title for the result and choose the result file using the file browser.



Step 19: The next feature is the “Syllabus” section.



Step 20: Once you choose the syllabus file, click on the “Add Syllabus” button. Click on “OPEN Syllabus” to see the uploaded syllabus.



For eg:

COURSE & CODE: ELECTRONIC DEVICES & CIRCUITS (CO10404)

Abr	Pre-Req	Cr	Teaching scheme Weekly Hours			Examination Scheme					
			L	T	P	Progressive	Test#	TW+	TH	PR	OR
EDC	--	05	03	--	02	30	25	70	25#	--	150

RATIONALE:
This subject deals with some of the latest electronic devices & regarding their applications.

OBJECTIVES:
The student will be able to

- 01 Understand the construction, working & application of some special electronic devices.
- 02 Develop skills to enable the student to use these devices in analog and digital processing systems.

SECTION I

1 SEMICONDUCTORES Intrinsic Semiconductor 1.1 Extrinsic Semiconductors (P & N Types) 1.2 Current phenomena in Semiconductors	[HRS 4, MARKS 06]
2 INTRODUCTION TO SEMICONDUCTOR DEVICES 1.1 Constructional features, operating principles, Characteristics, Specification and fields of application of devices 1.1.1 P-N junction Diode 1.1.2 Zener Diode 1.1.3 SCR 1.1.4 Diac 1.1.5 Triac 1.1.6 UJT 1.1.7 FET 1.2 Voltage Multiplier Circuit 1.1.1.1 Voltage Doubler 1.1.1.2 Voltage Tripler	[HRS 12, MARKS 30]
3 BIPOLAR JUNCTION TRANSISTOR 3.1 Construction of NPN/PNP Transistor 3.2 Working of NPN/PNP Transistor 3.3 Input, Output characteristics of CB, CE, CC configurations. 3.4 Load line and operating point	[HRS 8, MARKS 14]

Step 21: The next feature is the “Timetable” section.



Step 22: The timetable will appear after you select this section.

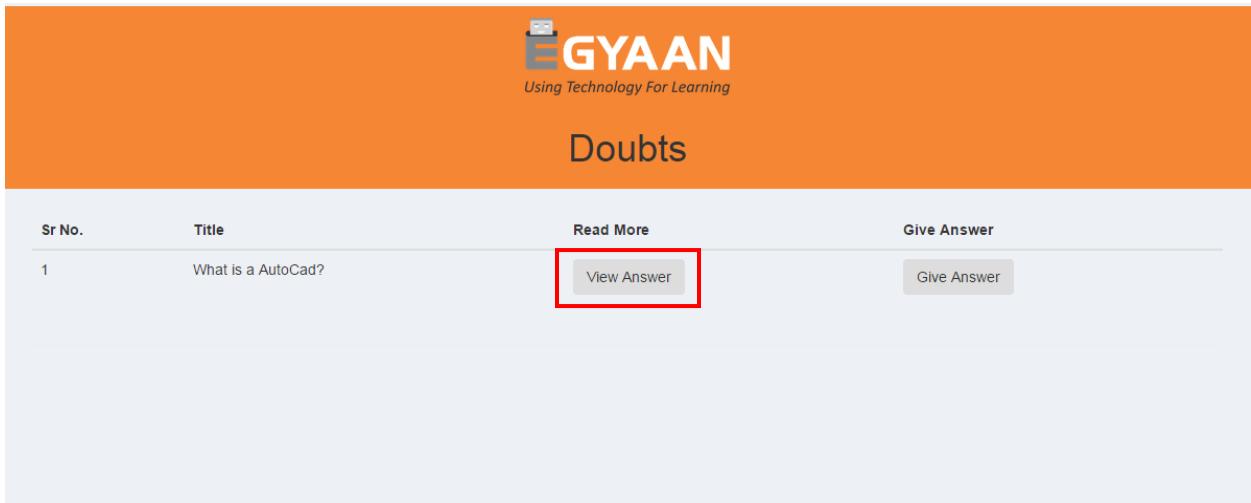
The screenshot shows the EGYAAN TimeTable page. The header includes the EGYAAN logo and tagline. Below the header, the word "TimeTable" is centered. The main content is a 2x7 grid representing the weekly schedule. The columns are labeled Monday through Saturday. The rows represent time slots: 10:30-11:30 and 11:30-12:30. The grid contains subject codes: B, C, D, E, F, G in the first row; and I, J, K, L, M, N in the second row. The entire grid is set against a light gray background.

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10:30-11:30	B	C	D	E	F	G
11:30-12:30	I	J	K	L	M	N

Step 23: The next feature is the “Doubts” section



Step 24: In this section, if you want to view the answer of the doubt then you will click on the “View Answer” button



Step 25: After clicking on “View Answer”, the following page will be displayed in which you can see the doubt as well as its answer.

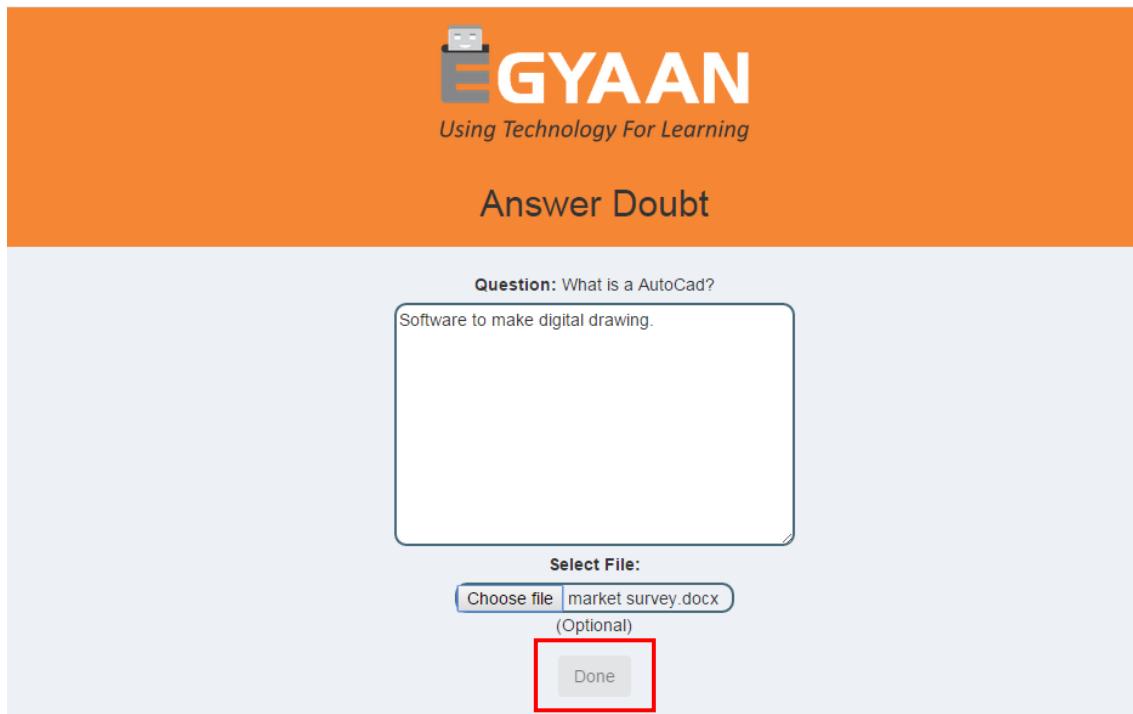
The screenshot shows the EGYAAN platform interface. At the top, the EGYAAN logo with the tagline "Using Technology For Learning" is visible. Below the logo, there is a "View Answer" button. The main content area contains a "Doubt" section with the question "What is a AutoCad?" and an "Answer" section with the response "Software to make digital drawing.".

Step 26: If you want to give the answer of the doubt, you will click on the “Give Answer” button.

The screenshot shows the EGYAAN platform interface under the "Doubts" section. It displays a table with one row of data. The columns are labeled "Sr No.", "Title", "Read More", and "Give Answer". The first column has the value "1", the second column has the value "What is a AutoCad?", the third column has the "Read More" button, and the fourth column has the "Give Answer" button, which is highlighted with a red box.

Sr No.	Title	Read More	Give Answer
1	What is a AutoCad?	View Answer	Give Answer

Step 27: Then click on done, after which your answer will be posted.



Step 28: For logging out, click on “Logout” on the Teacher Dashboard.



CHAPTER

8

APPLICATIONS

- EGyaan is a project that is been made with a vision to cater schools, universities and colleges of all over the world. It is not made for any specific institute, it can be used by any educational institute.
- EGyaan provides step by step guide and easy to use interface. The features provided by EGyaan like high security, proper connectivity, centralization, portability, speed; all this at a very low cost (where software is free only hardware costs apply); these factors give EGyaan a high potential of success
- **Applications:**

 1. **School, Colleges, Universities:** As EGyaan is not made for any specific institute and provides an option to add the whole infrastructure of the institute, thus it can be used by any School, Colleges or University.
 2. **Educational Program:** EGyaan can be used by educational programs to teach their students using eLearning.
 3. **Office Training:** It can be used in office training programs to train the office employees.

- Basically EGyaan is a project that has its application where there is requirement of digital/eLearning.

CHAPTER

9

CONCLUSION

Basically EGyaan is a project that has its scope in the E-Learning field. Our primary objective to make this project was to bring technology into the current educational system. Thus, by bringing in the tablet that is the students study material and by digitizing the curriculum, EGyaan thus meets the objectives that we wanted. EGyaan is a view towards a greener world and a digitized learning system by use of digital eBooks instead of the paper based books. EGyaan would actually make a move towards a better future of the Indian Education System.

Thus, we would like to conclude by saying EGyaan is a solution that is

“Using Technology for learning”

CHAPTER

10

ACHIEVEMENTS

We are very proud to that our project won 1st price at:

1. Bhagubai Mafatlal Polytechnic, Vile Parle (Technical Paper Presentation)
2. Avalon'15 – Terna college of engineering, Nerul. (Technical Paper Presentation)

Our project also got selected for the competition such as:

1. Technomania 2015 organized by IEEE on a National level. (Project Presentation)
2. Tantradyan 2015 organized by Lokmanya Tilak College of Engineering (Project Presentation)
3. Avalon'15 – Terna college of engineering, Nerul. (Project Presentation)

CHAPTER

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[2] Android Development Programming

“Youtube.com (The NewBoston Channel)”

Available :

<https://www.youtube.com/user/thenewboston>

[3] Make Ubuntu XDMCP Server

“Wiki.ubuntu.com”

Available :

<https://wiki.ubuntu.com/xdmcp>

[4] XAMPP download and installation
“Apachefriends.org”

Available:

<https://www.apachefriends.org/index.html>

[5] Raspberry pi OS download and installation

“Raspberrypi.org”

Available: www.raspberrypi.org

CHAPTER

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CHAPTER
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IEEE PAPER

Egyaan

Using Technology For Learning

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Abstract—Technology nowadays is developing at a very fast pace. Basically when learning is done with the help of technology then this environment is called a E-Learning environment. So EGYAAN is a Innovative E-Leaning project that is basically bringing in “technology” into the current education system. This project will help reducing stress for students to carry notebooks and textbooks to colleges everyday; by digitizing all textbooks “online”. The idea behind this project is to give students a light weight low in cost but still very powerful tablet like computer(Wooden based tablet) which has a raspberry pi as its main processor and internal storage to act as all in one hardware to retrieve and store textbooks, take down notes as well as carry assignment books in digital format with them in a secured environment. Not only that it help teachers to automate attendance process and generate defaulters list. In addition this project has online virtual notice board where students can view the latest notices along with facility for students to submit their doubts from anywhere. The EGYAAN website built using HTML, CSS and Bootstrap Framework is made mobile friendly so it can also be accessed from mobile phone web browsers. An Android Application built using Android Studio will also be made available to students free of cost to access time table, raising doubts, have a look at the notice board, etc on the move. Database connectivity of this project is ensured using PHP with a MySQL database on a Apache server. There are many E-Learning projects in the market, but they either focus only on the “Learning” part or the “School Management” part, but EGYAAN is a mixture of both “Learning”+“School Management”. EGyaan is basically an easy to implement and use, open source Innovative E-Leaning project that is been made with a vision to cater schools, colleges and universities of all over the world. Basically EGYAAN is *Using Technology For Learning*.

Index Terms— E-Learning, Technology, Online, Tablet, Digital, Automize, Android, Learning, School, Management.

I. INTRODUCTION

Quite simply E-Learning is electronic learning, learning conducted via digital media, typically over internet is E-Learning. Nowadays use of technology in day-to-day life is increasing very fast. Now everything is changed by technology so why not the education system take advantage of such technology that not only provides speed but also provides accuracy. The education system has taken proper advantage of technology and enhanced itself a lot. EGyaan is basically a part of this enhanced education system. Basically EGyaan is a open source, easy to use and maintain innovative eLearning project that has been made with a vision to cater schools, colleges and universities of all over the world.

E-Gyaan is a project that will help in reducing the strain on the shoulders of the students to carry heavy bags to their institute. They will only have to carry the E-Gyaan tablet that we will be providing. All of their textbooks will be stored in the tablets in a digital format. This will also help our environment as there will be no paperwork that will be done either by the students or by the teachers. This project includes three parts, firstly The Website, this being a major part of our project will include all the features like Reading books online, online notice board, online doubt section and many more. Secondly, this project will also provide a mobile application only for students and parents that will provide options for raising doubts, accessing important notices, having a look at the timetable on the move. Thirdly, when the student comes to the class he will be bound in a client server environment with a Ubuntu server and our E-Gyaan Tablet as a client.

II. HOW DID WE PERCEIVE THE IDEA OF THIS PROJECT ?

We perceived the idea of this project with the thought of **bringing technology into the current education system**, reducing stress on the students shoulder of carrying heavy bags daily, completing assignments; by digitizing all textbooks and notebooks and making them focus more on their studies instead of just focusing on completions and not learning. With a dream that even the student who does not have a computer at home must be exposed to technology we planned to give a low cost affordable tablet to all the students that would be their personal computer as well as their study material. With the vision of making India Education even more advance and digitizing the curriculum came the idea of project EGyaan.

III. PROBLEM STATEMENT

A. *Paperwork*: The students have to take a lot of efforts and complete their assignments. Also the teachers have to maintain their registers for attendance which can be a pain for the teachers.

B. *Stress on students*: The students have to carry heavy bags to their institutes which can be tiring. They also have to maintain sheets for assignments and journals that can sometimes cause stress.

C. *Attendance Proxy*: The students at times give proxy attendance of their friends which is not acceptable as per rule.

D. *Educational system is not connected to technology*: The education system that is followed these days is still based on the old customs of textbooks and books which is far more behind than the technology that is developing.

E. *High study material Cost*: The students have to purchase textbooks, notebooks or even take xeroxes of the books available in the library whose costs are very high.

F. *Environment*: As the education system is paper based and paper is made out of cutting trees it is not very environment friendly. Lakhs of trees get cut per year to make paper out of them.

IV. OBJECTIVE AND SCOPE OF THE PROJECT

- The main objective of this project is to bring in technology into the current education system at all levels.
- The second main objective is to digitize all educational contents.

- Keeping the cost low. This project will provide professional level quality with low cost.
- This project will provide a low in cost but still a very efficient tablet.

V. CHARACTERISTICS OF THE PROJECT

A. *Portable*: In this project we had aimed to portability so we have provided a E-Gyaan Tablet to students so that they have access to their curriculum from anywhere.

B. *Easy To Use*: This project is been made really easy to use so that students of all grades can use it easily.

C. *Secure*: This project is made highly secure as it is bound to work within a client server environment and steps have been taken to assure security of data.

D. *Centralization*: This is a project that is made for all educational institutes and is grade independent i.e. It is not made for any particular school/ college/ university or any particular grade, this project allows full customization to make it work according to the institute. Thus, it can be used by any college, school or university making the education system a Centralized one.

VI. FEATURES OF EGYAAN

- There will be 5 logins : Student, Parent, Teacher, HOD, Admin Login.
- It will be providing a online Notice Board so that students can have a look at the notices from anywhere.
- It will be providing a online timetable so that students have a access to the timetable from anywhere.
- This project will be providing a function to automate the attendance system, helping the teachers to generate the defaulters lists.
- Instead of written assignments the assignments will all be in digital form with EGYAAN and it would be easy for the teacher to record who all have submitted the assignment and who all have not.
- A very important feature of EGYAAN is that it provides a place where students can download and read their textbooks, uploaded by the subject teacher, that will be stored on their tablet.

- EGYAAN will also be providing a area for students where they can ask doubts from anywhere to the teacher.
- This project also provides a mobile application where the student can see the notice board for urgent notice, the timetable, post doubts to the doubts section, use the messenger to interact with classmates and do much more.
- As I have mentioned in the earlier posts, this project includes a Tab called the EGYAAN TAB that would be the study material for the students.
- The software would be providing branch vise divisions and also customization for each college. These things would be onetime configurations which would be done when the software is installed for the first time.

VII. FEASIBILITY STUDY

A. Technology and system Feasibility: In todays world, technology is moving from big desktops to small and portable devices like tablet and mobiles, our project will be providing a tablet to the students which will help to take the education system towards the latest technology.

In current education system all the work is done on papers, so our project will give us the same thing in a digitized way which is feasible with the current education system.

B. Economic Feasibility:

1) *Development Cost:* The development cost of this project is around 6,000/- . The tablet that will be provided will cost around 5,500/- to 6,000/- . And the cost of softwares used is 0/- as we are using all open source products for development and all open source languages like PHP, HTML, CSS, MySQL, GIMP (For Designing background images) which are all free of cost.

2) *User Cost:* The user cost of this project is 5,500/- ie. the cost of the tablet.

C. *Operational Feasibility:* The most important part to be kept in mind while making the project is to make the project user friendly and to make it totally operationally feasible. Our project is being designed to be very easily useable to students of all grades and is perfectly operationally feasible.

VIII. COST ANALYSIS

TABLE I. EGYAAN VS CURRENT EDUCATION SYSTEM

CURRENT EDUCATION SYSTEM	E-GYAAN
In the current education system the cost of study material is too high. The minimum cost of a school or college student per semester is approximately 8,000/- to 10,000/- .	But if the current education system is replaced with E-GYAAN, student will be provided with a tablet and all the study material will be digitized which cuts down the cost as the tablet is of 6,000/- which is just one time.
In the current education system a lab with approximately 20 machines will cost the college around 6,00,000/- .	But if E-GYAAN is implemented no labs will be needed as each student will have their own tablet. Hence, saving high cost of the school/college.

IX. HARDWARE AND SOFTWARE USED

A. Hardware: The hardware in the project will be a full fledged **Wooden Tablet** named EGyaan Tab. The Tablet will be made up of:

- LED screen as VDU.
- Raspberry pi
- Power bank as power supply.
- LCD controller to connect Raspberry Pi and LED screen.
- HDMI cable.
- Server

B. Software: **The software has two parts :** Web part and other is the Android Application. The softwares used:

- HTML
- PHP 5.5
- CSS
- MySQL
- Android Development Toolkit.

The GUI of the Web part will be made by using HTML and CSS. The Database of the whole Application and Web part would be managed by using MySQL and PHP 5.5. The Android application would be made using Android Studio (Android Development Toolkit).

As you can see the above softwares are all open source softwares, this saves a lot of development cost and the operation system used in the tablet is Raspbian which is based of a Linux based distro named Debian and the server to which the tab will be connected will be using Ubuntu 12.04. All these operation systems are FREE which saves a lot of cost.

X. TECHNICAL DETAILS OF EGYAAN

A. *EGyaan Website*: The EGyaan website has a very smooth and user friendly interface. It consists of majorly 4 logins:

- 1) Student Login
- 2) Parent Login
- 3) Teacher Login
- 4) HOD Login.
- 5) Admin Login

When the EGyaan website will be first setup on the server the user will be provided with the Admin Login from where the user has to setup the EGyaan website to suit the institute where it is to be used. Each login provided by the EGyaan website provides a set of functions. The Student login is the most important login, in this login the student can read as well as download textbooks, notes; get the assignment questions and upload the answers; view the online notice board and timetable, raise doubts from anywhere; get his results; and do many more things. Then comes the Teacher login, all what the student gets to read, the textbooks, notes, assignments, etc come from the teacher login. From this login the teacher can upload the curriculum for his/her subject. Then comes the parent login, here the parent can see the noticeboard, he/she can see the results of their wards, they can schedule meetings with the subject teachers or send messages to the teacher regarding their ward. Then comes the HOD login, here the HOD of each branch can add notices, see the review of students of his branch, and also assign admin privileges to teachers of his/her branch.

B. *EGYAAN TAB in class*: The EGyaan tab that will be provided to the students will be their full study material, when the students come to the class he/she is supposed to carry the EGyaan Tab. In the class the EGYAAN TAB starts acting like a thin client and gets connected to a ubuntu based server so that the students get bound to work within the environment that the teacher wants them to work in.

XI. SPECIFIC AREA OF APPLICATION OF EGYAAN

To be specific the area of application of our project EGyaan is any educational institute as we have made it flexible enough to function according to the institute it is implemented in, by

providing customization rights to curb the web application according to the institute.

XII. INNOVATIVENESS AND USEFULNESS OF EGYAAN

- There are many eLearning softwares available in the market like moodle, fedena, etc. But they either focus totally on school/college management systems or they focus only on teaching/learning part, but EGyaan is a project that includes basics of management system as well as it has proper focus on the learning system.
- The uniqueness of this project comes with the Wooden Tablet that this project will provide to each student of the institute/organization. Only that tablet will be allowed to access the EGyaan website. This ensures security of data and uniformity among students.
- The centralization and the atomization that comes in with this project makes it a very useful product that makes school/college management for the teacher and learning for the students very easy,fe.
- This product being mobile friendly (i.e. Responsive website), it is also available to users on mobile phones.
- An Android Application will also be provided which allows students to do basic work like read notices, see the timetable, post doubts, etc. from the phone itself.

XIII. WHY EGYAAN ?

- There are many eLearning solutions in the market but the common problem faced by the eLearning is that there is no software that is a full package of hardware and software i.e. only softwares are available but EGyaan is a project that is a full package that is being developed to ensure good software and efficient connectivity of the software and hardware.
- In terms of the traditional education industry EGyaan is a solution to many time consuming problems like stress on students to carry heavy bags and write assignments, paper work of the teacher,

etc. EGyaan gives a solution to such problems making the student and teacher focus more on learning and teaching respectively.

- In terms of social needs, we made this project with a dream that each student of India who possibly does not have a computer at his/her home must be exposed to technology, so we made a low in cost but still a very powerful wooden tablet that acts as a personal computer as well as the students study material. This will help in advancing the Indian education system which is very important for the country's future.

XIV. POTENTIAL OF EGYAAN IN THE MARKET

The software market is being ruled by multinational commercial companies. There are free alternatives of these softwares but due to the gap between the facts and meths about open source in people's minds makes people select commercial softwares. We tried to understand both the commercial as well as the open source development softwares and keeping the cost in mind we decided to develop this project using **open source softwares**. EGyaan is an open source eLearning project that reduces this gap of the fact that open source is easy to use and the meth that open source does not provide proper support. EGyaan does this by providing step by step guide and easy to use interface. **EGyaan has high potential in educational institutes, Business training programs, distance learning programs and any learning program that demands digital learning.** The features provided by EGyaan like high security, proper connectivity, centralization, portability, speed; all this at a very low cost (where software is free only hardware costs apply); these factors give EGyaan a high potential of success in the market.

XV. HARDWARE INTERFACING DIAGRAM

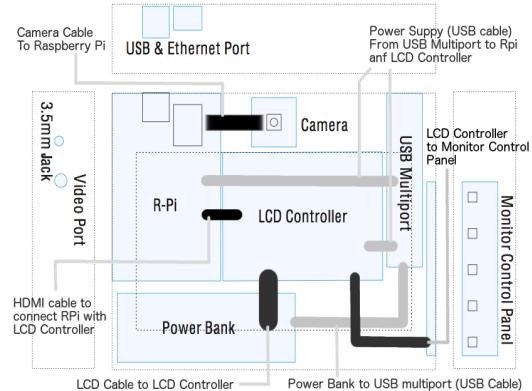


Figure 1. Hardware Interfacing of the EGyaan Tab

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“Wiki.ubuntu.com”
Available : <https://wiki.ubuntu.com/xdmcp>
- [4] XAMPP download and installation
“Apachefriends.org”
Available : <https://www.apachefriends.org/index.html>
- [5] Raspberry pi OS download and installation
“Raspberrypi.org”
Available: www.raspberrypi.org