

North East University Bangladesh

Department of Computer Science and Engineering



Virtual Class Venture

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27th October 2020

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A Project submitted to the Department of Computer Science and Engineering,
North East University Bangladesh, in partial fulfillment of the requirements for
the degree of Bachelor of Science in Computer Science and Engineering

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Recommendation Letter from Project Supervisor

These students, *Syed Nadir Ahmed, Md. Asif Muntasir*, their project entitled “*Virtual Class Venture*”, is under my supervision and I agree to submit for examination.

Signature of the Supervisor :

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Student Name: Syed Nadir Ahmed, Md. Asif Muntasir

Project Title: Virtual Class Venture

This is to certify that the project is submitted by the student named above in October, 2020. It is qualified and approved by the following persons and committee.

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Abstract

The world is now facing a pandemic situation. People are not far from this situation also. Almost all types of institutions are closed for Covid-19. Even in this unfavorable situation, human work does not stop. Nowadays almost all the work is done sitting at home. And this is possible due to the increasing development of information technology. Of Which the use of virtual online meeting is everywhere and most. Like business meetings, online classes etc. In this pandemic situation, education institutions are conducting their educational activities through various online platforms. Here we proposed a system that is actually a browser-based meeting platform (WebRTC) only for an education institution. Here teacher will be able to create classrooms using our platforms. Where he or she can take classes online and share class related resources with students. By using our platform, student will be able to join online classes and access all kinds of resources. The admin will be able to monitoring the whole system. It means he or she can see the student and teacher profile, whole teachers' activity, student activity, will be able to solve any type of profile issues and so on. Admin will also be able to add new admin and maintenance whole type of admin activities. Our platforms also provide some features like screen share, recording, chat during class time, participate list which is already providing various meeting platforms. However, our project completely different from zoom and classroom because these two platforms provide individual solution. But our project is a complete solution of them for online class.

Keywords: Online education platform, Create classroom, WebRTC, Share resources, Streaming.

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Chapter 1

INTRODUCTION

Virtual Class Venture allows educational institutes to arrange classes in online. This is a browser-based web platform. Here we propose a system where host (teacher) will be able to connect with user(student) using webrtc. Host will be able to share any types of resources by using our platform. So, the goal of our project is to build a complete solution for online class. Here we consider two different thinking which are webrtc and resource sharing platform which gives us a complete solution. Due to time limitation our main target is to complete webrtc related work.

1.1 Objective

The objective of the Virtual Class Venture is to build a system that will help an institute to do their teaching activities in online. By this application teacher can build a virtual classroom from anywhere at any time. Our proposed system goals to build an environment where an education institutes get a complete platform to continue educational activities in online.

1.2 Existing Environment Problems

- 1 In the case of an existing system, the executable file of the environment has to be installed on the hardware of the PC.
- 2 For Video streaming and resource sharing, teachers have to use different environments.
- 3 Educational institutions have no control over the existing environment.
- 4 Teachers have to take data about student manually.

1.3 Features

1. Main Features:

- 1 Live video streaming class.
- 2 Full screen, half screen etc. control.
- 3 One to one, one to many, many to many video streaming mechanisms.
- 4 Screen sharing facility.

- 5 Microphone on off system.
- 6 Live video chat during the live class.
- 7 Video recording facility (recorded videos will be saved on the system automatically).
- 8 Participate student list view.
- 9 Multiple view mechanism (like: grid view).
- 10 Profile creation and maintenance.
- 11 Activities monitoring & control from admin panel.

2. Additional features:

- 1 Classroom creation.
- 2 File upload & download (like: video file, any text file).
- 3 Class commenting facility.
- 4 Dynamic attendance system.
- 5 Quiz exam facility.
- 6 Notice given system.
- 7 Assignment taking system.

Chapter 2

BACKGROUND STUDY

For background study, we use similar meeting applications in our pc to analyze the management system of those applications. We also analyzed the User Interface and functionality of those applications which they provide.

2.1 Skype

Skype is a telecommunications application that specializes in providing video chat and voice calls between computers, tablets, mobile devices, and smartwatches over the Internet. Skype also provides instant messaging services. Users may transmit text, video, audio and images.

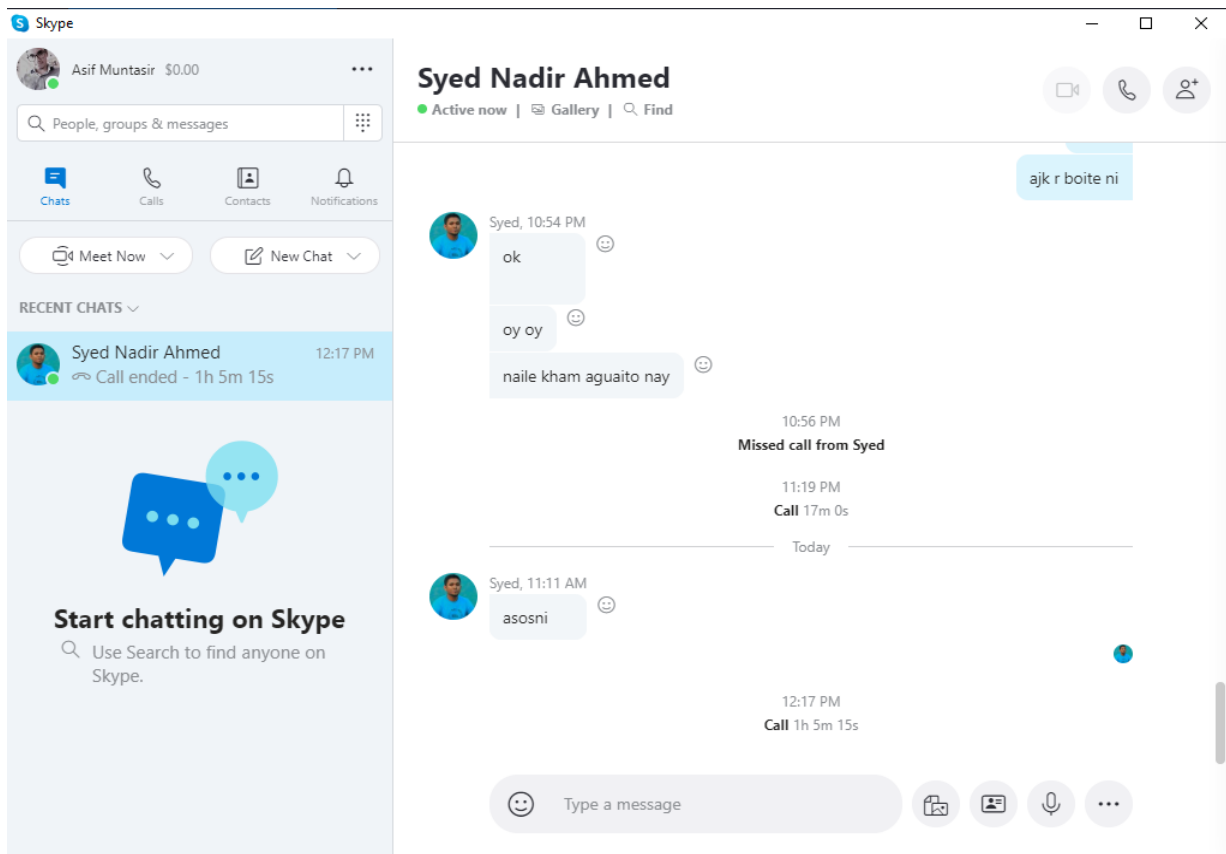


Figure 2.1: Skype

2.2 Zoom

Zoom is a video communications platform between computers, tablets, and android smartphones over the internet. It provides videotelephony and online chat services through a cloud-based peer-to-peer software platform and is used for teleconferencing, telecommuting, distance education and social relations.

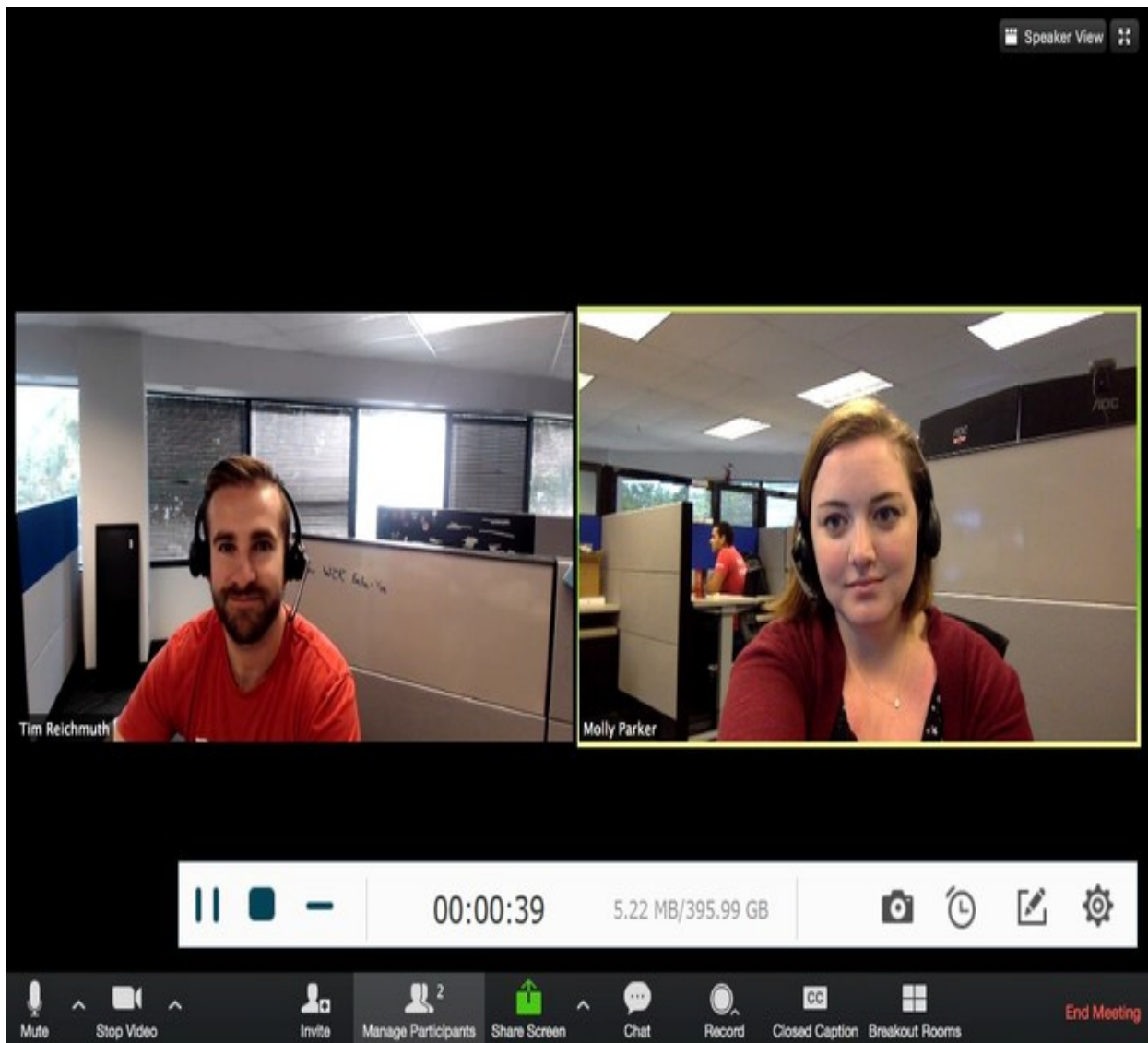


Figure 2.2: Zoom

2.3 Google Classroom

Google Classroom is a free web service developed by Google for schools, colleges and universities that aims to simplify creating, distributing, and grading assignments. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students.

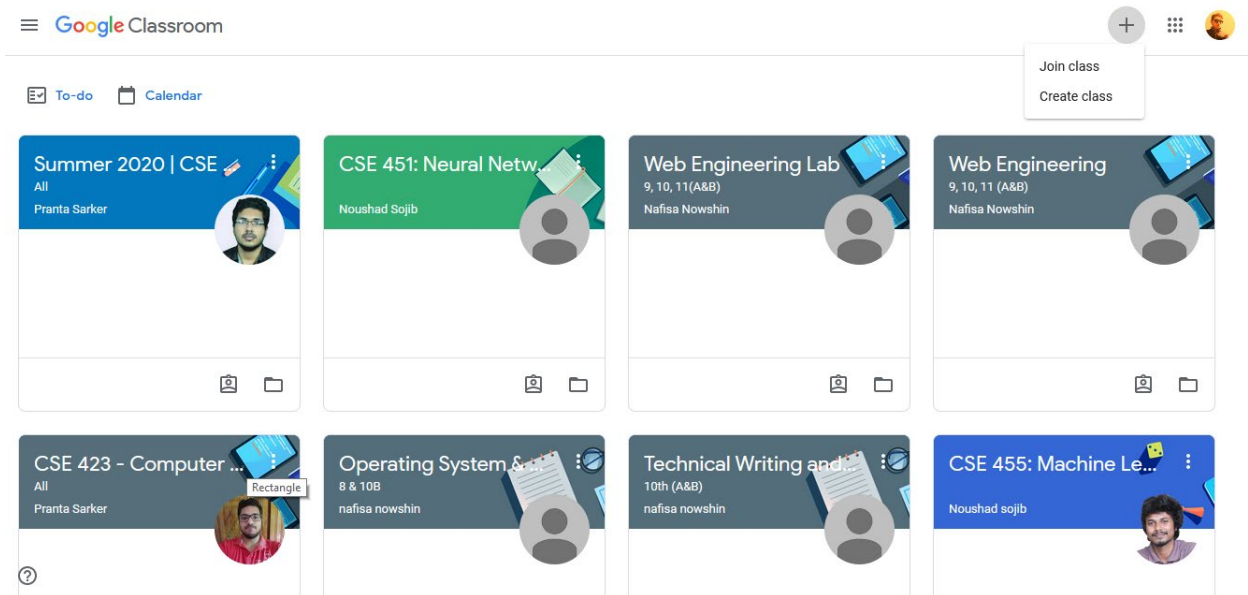


Figure 2.3: Google Classroom

Note: Here we use some information about each platform as a small introduction from Wikipedia.

Chapter 3

FEASIBILITY STUDY

The Feasibility study divided into two sites:

- User and admin site
- Developer's site

3.1 User and Admin Site Feasibility:

1. Technical Feasibility:

To use this web application, users need a desktop or laptop-based web browser with the following hardware like-

- Windows Version- Latest Version
- Browser Version- Latest Version
- RAM- 4GB (min)
- Front Camera Resolution: 2 Megapixel (min)

2. Financial Feasibility:

For this web application, some amounts will be spent like-

- Internet Bills

This application will follow freeware software standards. No costs will be charged from the potential users.

3. Resource Feasibility:

Resources those are required for this application

- A desktop or laptop computer
- A webcam and microphone
- Broadband or mobile internet connection

4. Risk Feasibility:

- Users will get all facilities that are needed for this application.
- They will get all the requirements to use this application.

3.2 Developer's Site Feasibility:

1. Technical Feasibility:

This application has been created by using web technology in VS Code on a laptop or desktop. The hardware needs-

- Processor: Intel Core i3 3rd generation (or Above)
- RAM: 4 GB (min)
- Hard Disk: 50 GB (or Above).

So, the project is technically feasible.

2. Financial Feasibility:

This assessment typically involves a cost analysis. For this project, some amount will be spent like-

- Internet Bills

3. Resource Feasibility:

Resources that are needed like-

- Laptop/Desktop
- A webcam with microphone

4. Risk Feasibility:

- The tools which are needed to develop the project are all available and free source to use.
- The project is being an 8-month project. We have divided our work into several sections and hopefully we will complete the project in time and deliver.

Chapter 4

REQUIREMENT ANALYSIS

We have done our requirement analysis part with the following steps:

- Arrange meeting with our classmates and teacher
- Installed and analyzed similar video conferencing app
- Analyzed that information to find different types of requirements
- Analyzed software requirements specification (SRS) by all aspects

4.1 Requirements of the system:

1. Functional Requirements
2. Non-Functional Requirements

4.1.1 Functional Requirements:

- Live video class with screen controlling facility, chat, microphone mute-unmute facility.
- Video recording facility (recorded videos will be saved on the system automatically).
- Participate student list view.
- Multiple view mechanism (like: grid view).
- Profile creation and maintenance.
- Activities monitoring & control from admin panel.
- Teacher can create classroom.
- File upload & download (like: video file, any text file).
- Class commenting facility.
- Dynamic attendance system.
- Quiz exam facility.
- Notice given system.
- Assignment taking system.

4.1.2 Non-Functional Requirements:

The system is able to perform the following characteristics-

- **Usability:** The system can be operated from any kind of laptop and desktop-based web browser.
- **Reliability:** The system can perform all the user needs, which user wants.
- **Performance:** The system will be optimized but it will be performed well with a good connection of the internet.
- **User interface:** The user interface will be user friendly which is easy to use.

Chapter 5

APPLICATION DIAGRAM

Here we will describe the application diagrams of the project.

5.1 Activity Diagram

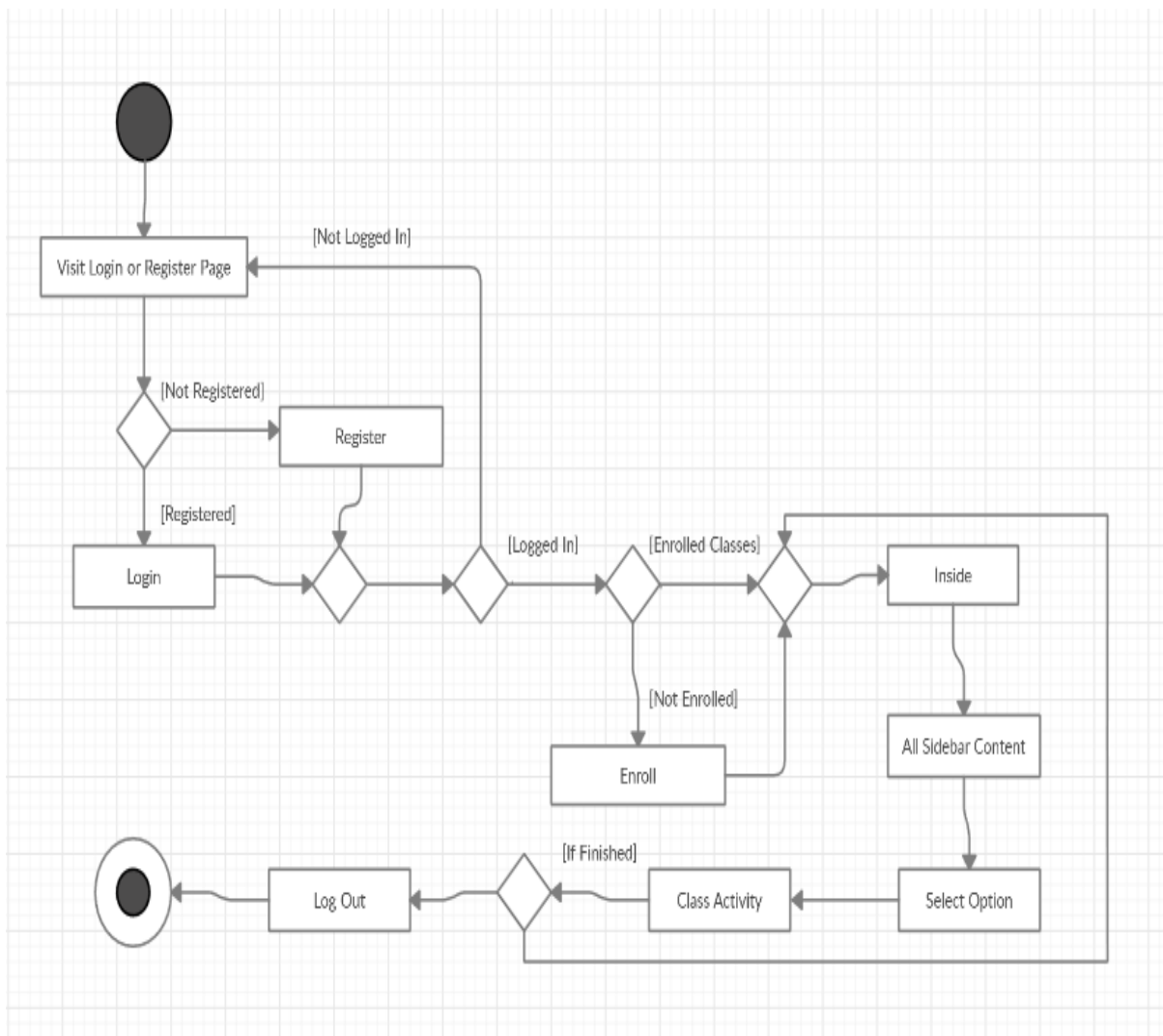


Figure 5.1 Activity Diagram of Virtual Class Venture (Student)

(We have used www.creatly.com to make the Activity Diagram)

5.2 Use Case Diagram

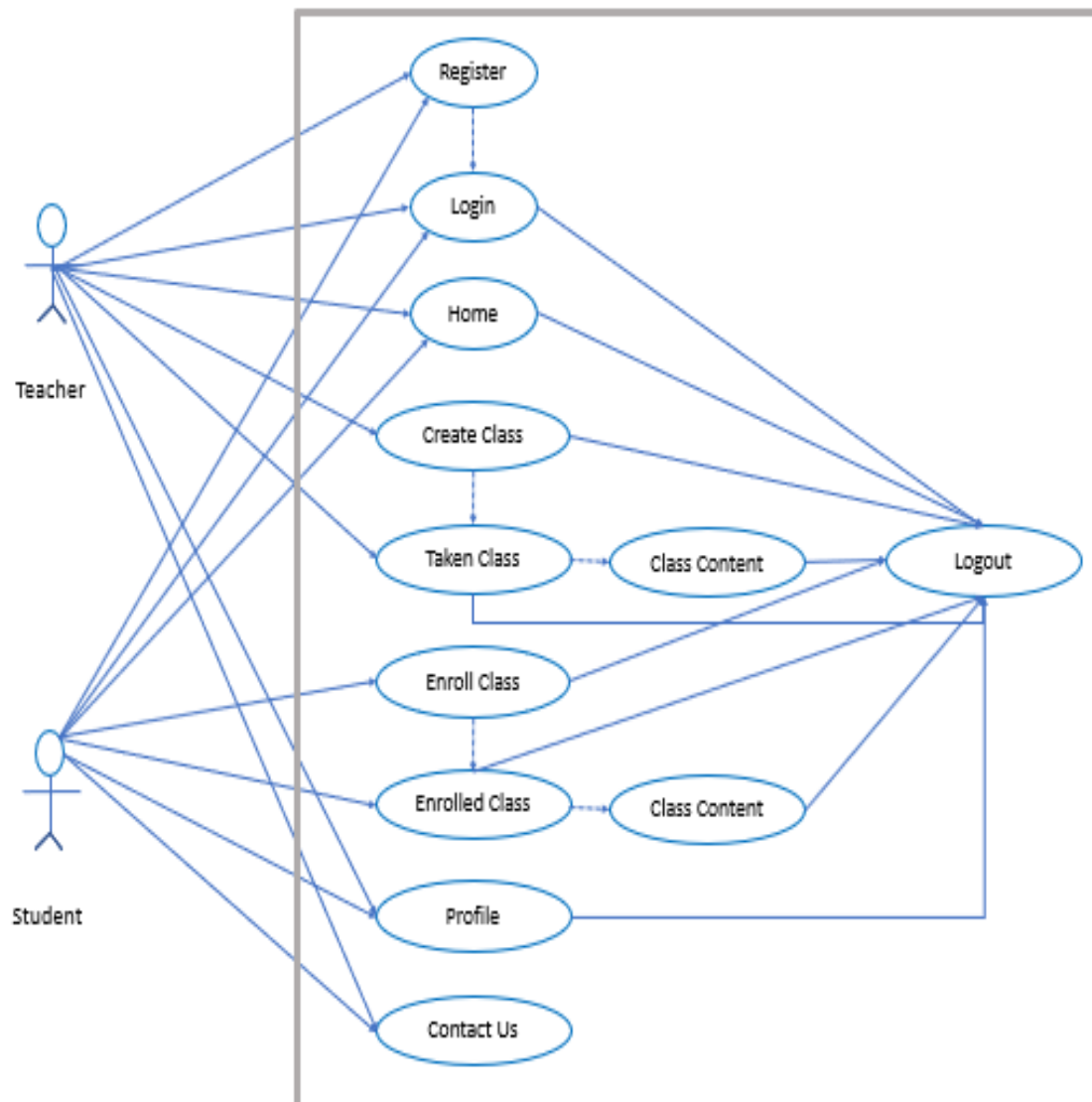


Figure 5.2 Use Case Diagram of Virtual Class Venture

5.3 ERD Diagram

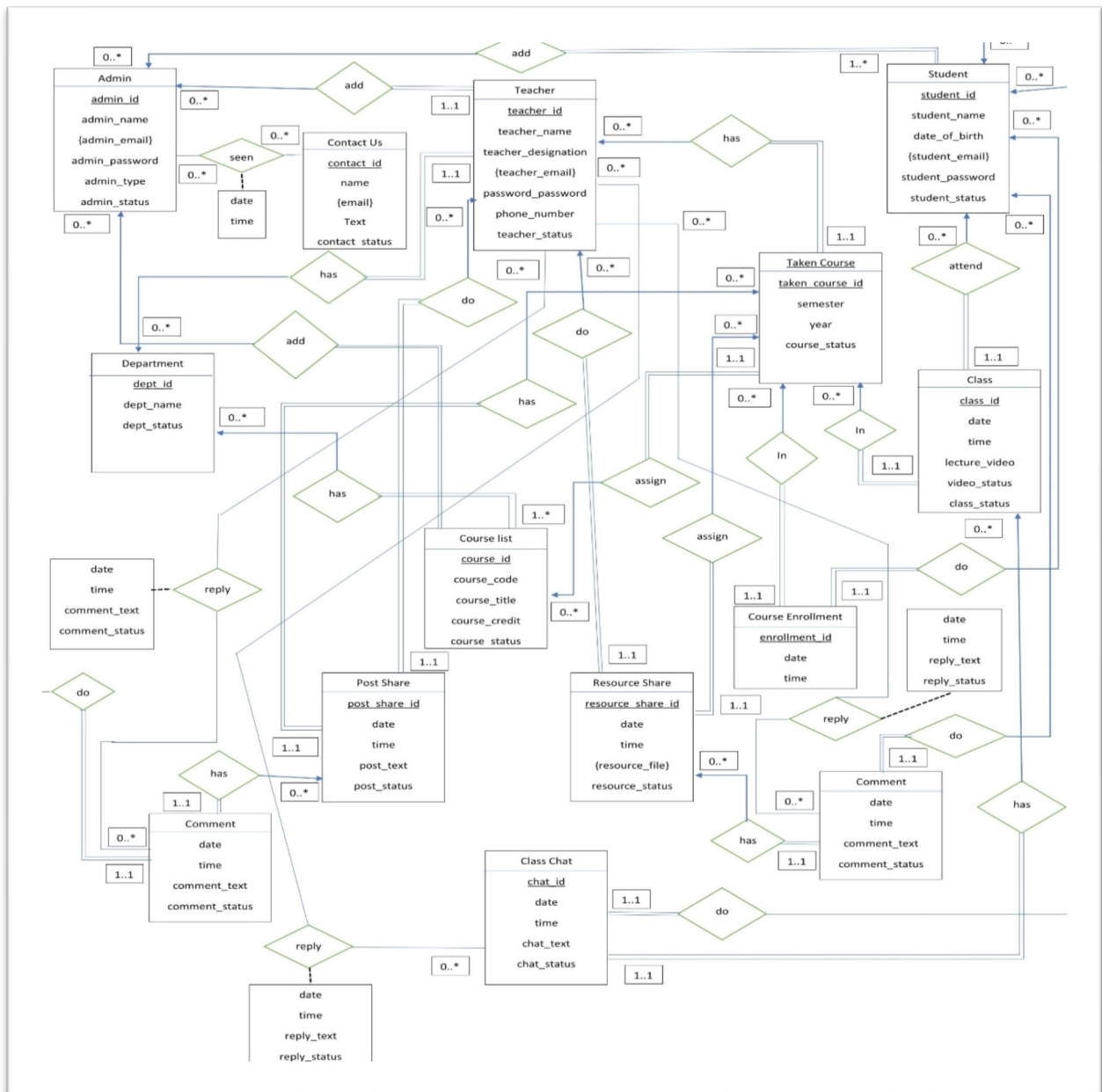


Figure 5.3 ERD Diagram

Full ERD link: [Final Year Project ERD](#)

Chapter 6

USER INTERFACE DESIGN

6.1 User Interface

We build a learning environment which is called Virtual Class Venture. User's of this application are teachers and students.

6.1.1 Admin

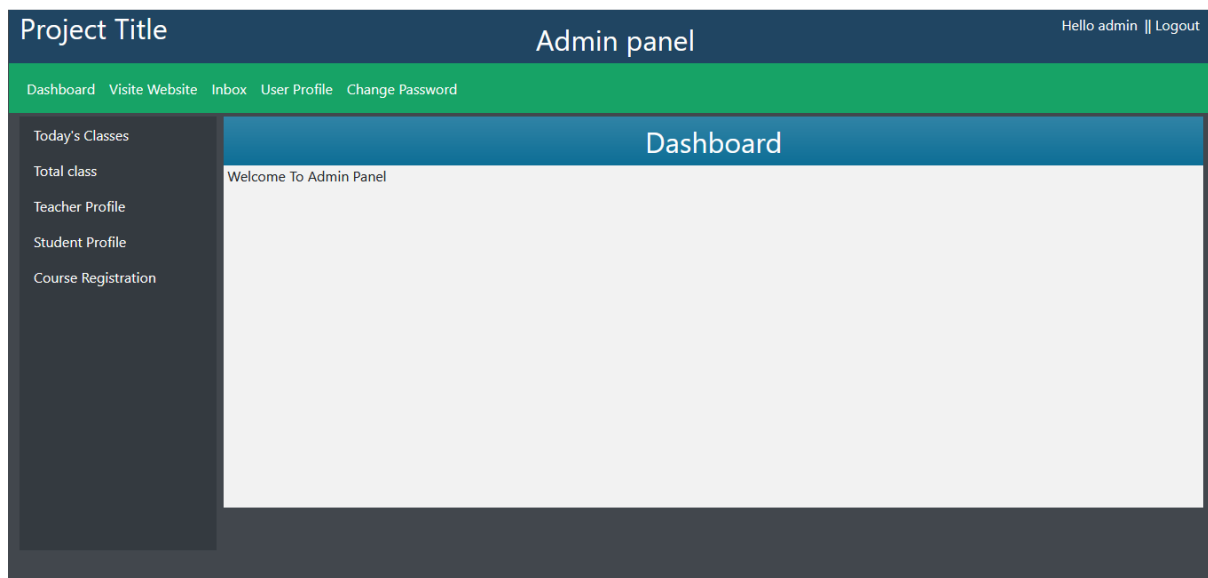


Figure 6.1 Admin Panel Dashboard

This is the admin dashboard and admin will see that page after complete the login step. From here admin will be able to control the whole system which we want to create.

6.1.2 Today's Classes

SL	Semester No.	Course Code	Course Title	Course Teacher	Class Time	Participate Students	Status	Action
1	11th	CSE-400	Thesis/Project I	MLR	8.00pm	See participate list	Running End	Checked Delete
2	11th	CSE-400	Thesis/Project I	MLR	8.00pm	See participate list	Running End	Checked Delete
3	11th	CSE-400	Thesis/Project I	MLR	8.00pm	See participate list	Running End	Checked Delete

Figure 6.2 Today's Classes

In here admin can see the class status of current date. Here class status means that is the class running or end and which teacher is taking the class and how many students is attending the class. After the end of class admin will also be able to delete the record.

6.1.3 Participate List

SL	Semester No.	Course Code	Course Title	Registration No.	Student Name	Profile
1	11th	CSE-400	Thesis/Project I	170103020000	XYZ...	See Profile
2	11th	CSE-400	Thesis/Project I	170103020000	XYZ...	See Profile
3	11th	CSE-400	Thesis/Project I	170103020000	XYZ...	See Profile

Figure 6.3 Participate List

This page will be able to view from another two page which is Total Class and Today's Class page.

6.1.4 Teachers Activity

Project Title

Admin panel

Hello admin || Logout

Dashboard

Visite Website

Inbox

User Profile

Change Password

Today's Classes

Total class

Teacher Profile

Student Profile

Pages

Settings

Teachers Activity

5

Department

Teacher

Course

mm / dd / yyyy

Check

SL	ID	Semester	Course Code	Course Title	Course Teacher	Class Time & Date	Number Of Taken Class	Action
1	005	11th	CSE-400	Thesis/Project I	MLR	4.00pm - 20.07.20	24	Checked Delete
2	005	11th	CSE-400	Thesis/Project I	MLR	4.00pm - 20.07.20	24	Checked Delete
3	006	11th	CSE-413	Web Engineering	NNP	4.00pm - 20.07.20	24	Checked Delete
4	006	11th	CSE-413	Web Engineering	NNP	4.00pm - 20.07.20	24	Checked Delete

Figure 6.4 Teachers Activity

Here admin can see the teacher's activity by using filtering as department, teacher name, course name date accordingly. Admin can delete teacher's activity.

6.1.5 Taken Classes

Project Title

Admin panel

Hello admin || Logout

Dashboard

Visite Website

Inbox

User Profile

Change Password

Today's Classes

Total class

Teacher Profile

Student Profile

Pages

Settings

Taken Class List

5

SL	ID	Semester	Course Code	Course Title	Course Teacher	Class Time & Date	Participate Students	Action
1	005	11th	CSE-400	Thesis/Project I	MLR	4.00pm - 20.07.20	See participate list	Checked Delete

Figure 6.5 Taken Classes

In this page admin can see how many classes have been done and how many students have been attended in the class and this page is linked up with total class page.

6.1.6 Teacher Profile

Project Title Admin panel Hello admin || Logout

Dashboard Visite Website Inbox User Profile Change Password

Today's Classes
Total class
Teacher Profile
Student Profile
Pages
Settings

Teacher Profile

5

Department Teacher Check

SL	Id No.	Name	Position	Details
1	005	MLR	Lecturer	See more

Figure 6.6 Teacher Profile

In teacher's profile page, admin can see the registered teacher's name and by clicking the see more button admin will be able to see the details about teachers.

6.1.7 Teacher Profile Details

Project Title Admin panel Hello admin || Logout

Dashboard Visite Website Inbox User Profile Change Password

Today's Classes
Total class
Teacher Profile
Student Profile
Pages
Settings

Teacher Profile

Teacher Full Name

Position

Department

Phone No.

Email address

Ok Edit Delete

Semester Statistics

5

Course Semester Check

SL	Course Code	Course Name	Number of taken classes
1	CSE-400	Thesis/Project	13
2	CSE-413	Web Engineering	15

Figure 6.7 Teacher Profile Details

After click the 'see more' button admin can see it and will also see the course list, number of taken class by teacher and so on.

6.1.8 Teacher Profile Edit

The screenshot shows the 'Teacher Profile Edit' page within an 'Admin panel'. The top navigation bar includes 'Project Title', 'Admin panel', and 'Hello admin || Logout'. A green sub-navigation bar contains 'Dashboard', 'Visite Website', 'Inbox', 'User Profile', and 'Change Password'. A dark sidebar on the left lists 'Today's Classes', 'Total class', 'Teacher Profile', 'Student Profile', 'Pages', and 'Settings'. The main content area has a blue header 'Teacher Profile' and a form titled 'Teacher Full Name'. The form includes input fields for 'Position', 'Department', 'Phone No.', and 'Email address', followed by a green 'Save' button.

Figure 6.8 Teacher Profile Edit

From teacher's details page, if admin click the 'Edit' button then admin can edit the teacher's profile.

6.1.9 Student Profile

The screenshot shows the 'Student Profile' page within an 'Admin panel'. The top navigation bar includes 'Project Title', 'Admin panel', and 'Hello admin || Logout'. A green sub-navigation bar contains 'Dashboard', 'Visite Website', 'Inbox', 'User Profile', and 'Change Password'. A dark sidebar on the left lists 'Today's Classes', 'Total class', 'Teacher Profile', 'Student Profile', 'Pages', and 'Settings'. The main content area has a blue header 'Student Profile'. Below the header is a dropdown menu showing '5'. Below that is a table with columns: 'Department', 'Session', 'Student Registration No.', and a red 'Check' button. Below this is a table with columns: 'SL', 'Session', 'Registration No.', 'Semester', 'Name', and 'Details'. The table contains one row with data: '1', 'Spring-17', '170103020000', '11th', 'XYZ...', and 'See more'.

SL	Session	Registration No.	Semester	Name	Details
1	Spring-17	170103020000	11th	XYZ...	See more

Figure 6.9 Student Profile

Here is the student profile page. Here admin will be able to see registered student list. By clicking the 'See more' button admin can see the details of registered student.

6.1.10 Student Profile Details

The screenshot shows the 'Student Profile' page in an Admin panel. The page has a dark blue header with 'Project Title' and 'Admin panel' on the left, and 'Hello admin || Logout' on the right. Below the header is a green navigation bar with links: 'Dashboard', 'Visit Website', 'Inbox', 'User Profile', and 'Change Password'. On the left side, there is a sidebar with links: 'Today's Classes', 'Total class', 'Teacher Profile', 'Student Profile', 'Pages', and 'Settings'. The main content area is titled 'Student Profile' and 'Student Full Name'. It contains a form with the following fields: 'Department', 'Birthday' (with a date picker showing 'mm / dd / yyyy'), 'Session', 'Semester', 'Registration No.', 'Phone No.', and 'Email address'. Below the form are three buttons: 'OK' (green), 'Edit' (yellow), and 'Delete' (red). Below the form is a section titled 'Semester Statistics'. It has a dropdown menu for 'Semester' and a 'Check' button (red). Below this is a table with the following data:

Sl.	Course Code	Course Name	Number of classs present
1	CSE-400	Thesis/Project	13
2	CSE-413	Web Engineering	15

Figure 6.10 Student Profile Details

After click the ‘see more’ button admin can see it and will also see the course list, number of attended class by student and so on.

6.1.11 Student Profile Edit

The screenshot shows the 'Student Profile Edit' page in an Admin panel. The page has a dark blue header with 'Project Title' and 'Admin panel' on the left, and 'Hello admin || Logout' on the right. Below the header is a green navigation bar with links: 'Dashboard', 'Visit Website', 'Inbox', 'User Profile', and 'Change Password'. On the left side, there is a sidebar with links: 'Today's Classes', 'Total class', 'Teacher Profile', 'Student Profile', 'Pages', and 'Settings'. The main content area is titled 'Student Profile' and 'Student Full Name'. It contains a form with the following fields: 'Department', 'Birthday' (with a date picker showing 'mm / dd / yyyy'), 'Session', 'Semester', 'Registration No.', 'Phone No.', and 'Email address'. Below the form is a 'Save' button (green).

Figure 6.11 Student Profile Edit

From student’s details page, if admin click the ‘Edit’ button then admin can edit the student’s profile.

6.1.12 Course Registration

The screenshot shows the Admin panel interface. At the top, there's a dark blue header with 'Project Title' on the left, 'Admin panel' in the center, and 'Hello admin || Logout' on the right. Below the header is a green navigation bar with links: 'Dashboard', 'Visite Website', 'Inbox', 'User Profile', and 'Change Password'. On the left side, there's a dark sidebar with a menu: 'Today's Classes', 'Total class', 'Teacher Profile', 'Student Profile', and 'Course Registration' (which is highlighted). The main content area is titled 'Course Registration' and contains a blue button 'Upload Excel File For Course Registration'. Below this is a 'Registration Form' section. It has a 'Registration No.' label and a text input field with placeholder 'Student Registration No.'. Below that is an 'Add Course' section with a 'Course Code' label and a text input field. Underneath the input field is a table with two rows: the first row has 'CSE-400' and 'X', and the second row has 'CSE-401' and 'X'. At the bottom of the form is a green 'Save' button.

Figure 6.12 Course Registration

Here course registration will be added which already has been done by student. Admin will be able to add student's manually. Admin can register multiple student at a time by uploading csv file.

6.1.13 Registration

The screenshot shows two registration forms side-by-side. At the top right, there are two blue buttons: 'Login' and 'Contact Us'. The left form is titled 'Teacher Registration' and has two input fields: 'Name' with placeholder 'Enter Your Full Name' and 'Email' with placeholder 'Enter Email'. Below these fields is a teal 'Next' button. The right form is titled 'Student Registration' and has two input fields: 'Registration No.' with placeholder 'Enter Registration No.' and 'Birthday' with placeholder 'mm / dd / yyyy'. Below these fields is a teal 'Next' button.

Figure 6.13 Teacher and Student Registration

Here Teacher will complete the form by using his/her name and email. Student will have to complete the form by using his/her registration number with birthdate.

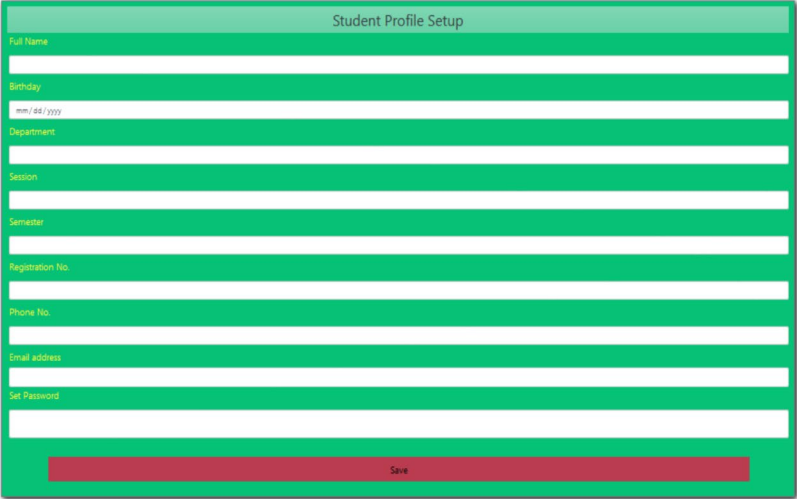
6.1.14 Profile Create



The image shows a web interface for creating a teacher profile. At the top right, there is a blue button labeled "Contact Us". The main form is titled "Teacher Profile Setup" and has a green header. It contains several input fields: "Full Name", "Position", "Department", "Phone No.", "Email address", and "Set Password". Each field is represented by a green bar with a white input area. At the bottom of the form is a red "Save" button.

Figure 6.14 Teacher Profile Setup

After complete the registration teacher will have to create the profile.

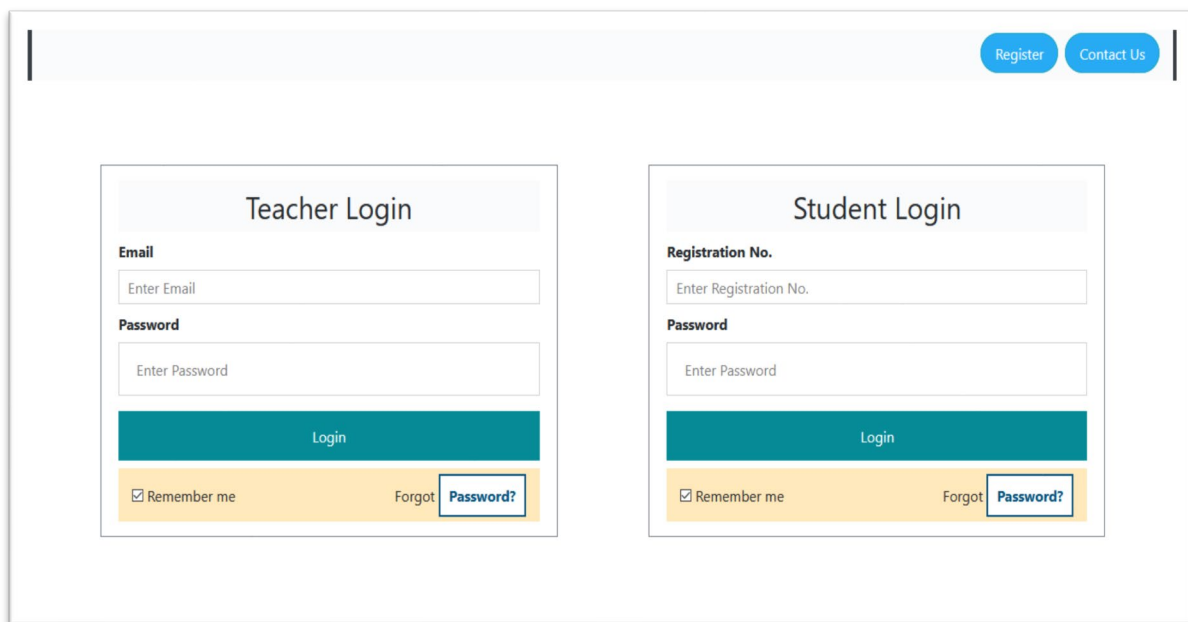


The image shows a web interface for creating a student profile. At the top right, there is a blue button labeled "Contact Us". The main form is titled "Student Profile Setup" and has a green header. It contains several input fields: "Full Name", "Birthday" (with a date picker showing "mm/dd/yyyy"), "Department", "Section", "Semester", "Registration No.", "Phone No.", "Email address", and "Set Password". Each field is represented by a green bar with a white input area. At the bottom of the form is a red "Save" button.

Figure 6.15 Student Profile Setup

And here student will have to create profile.

6.1.15 Login

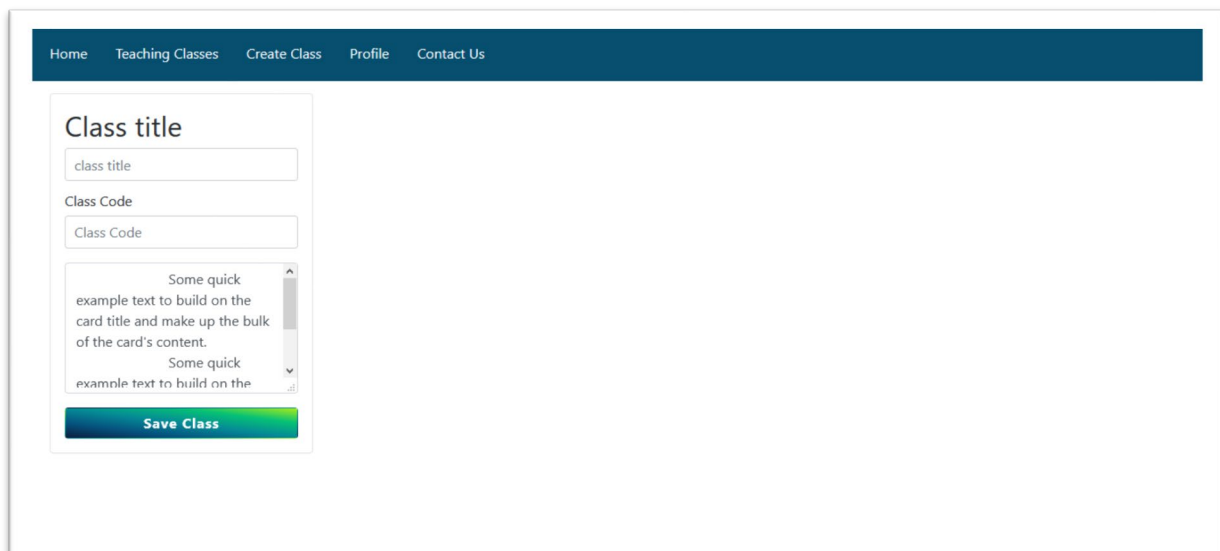


The screenshot displays a web application interface with a light blue header bar containing 'Register' and 'Contact Us' buttons. Below the header, there are two login forms side-by-side. The 'Teacher Login' form on the left has fields for 'Email' and 'Password', a 'Login' button, and a 'Remember me' checkbox. The 'Student Login' form on the right has fields for 'Registration No.' and 'Password', a 'Login' button, and a 'Remember me' checkbox. Both forms include a 'Forgot Password?' link.

Figure 6.16 Teacher and Student Login

After complete the profile setup now teacher and student both will be able to login to the system.

6.1.16 Create Classes



The screenshot shows a 'Create Class' form within a web application. The form is located on the left side of the page, with a dark blue header bar at the top containing navigation links: 'Home', 'Teaching Classes', 'Create Class', 'Profile', and 'Contact Us'. The form itself has a white background and a light blue border. It contains three input fields: 'Class title', 'Class Code', and a text area for a description. Below the text area is a 'Save Class' button. The text area contains placeholder text: 'Some quick example text to build on the card title and make up the bulk of the card's content.' and 'Some quick example text to build on the'.

Figure 6.17 Create Class by Teacher

In this page, here teacher can create a class with course title, course code and a short description of the course.

6.1.17 Teacher Home Page

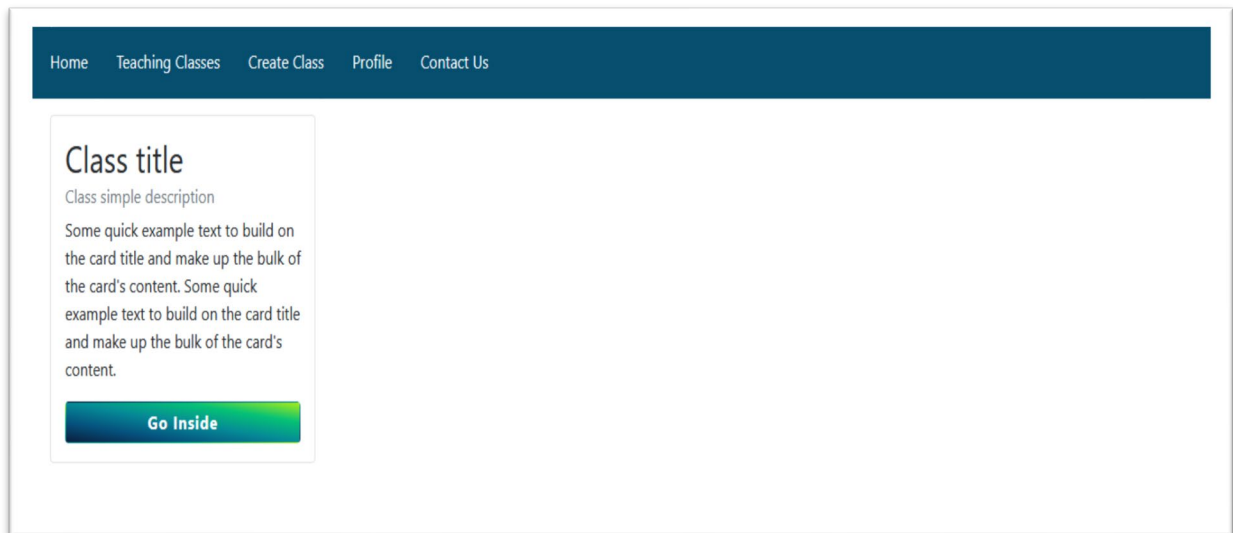


Figure 6.18 Teaching Page

Here teacher can see all the classes that has already created by he/she. After click the 'Go Inside' button teacher's will be able to see their activity which they have to do by using our platform. Like start live class, archive video, create assignment, resource sharing, make exam, see student list and make an announcement.

6.1.18 Archive Video

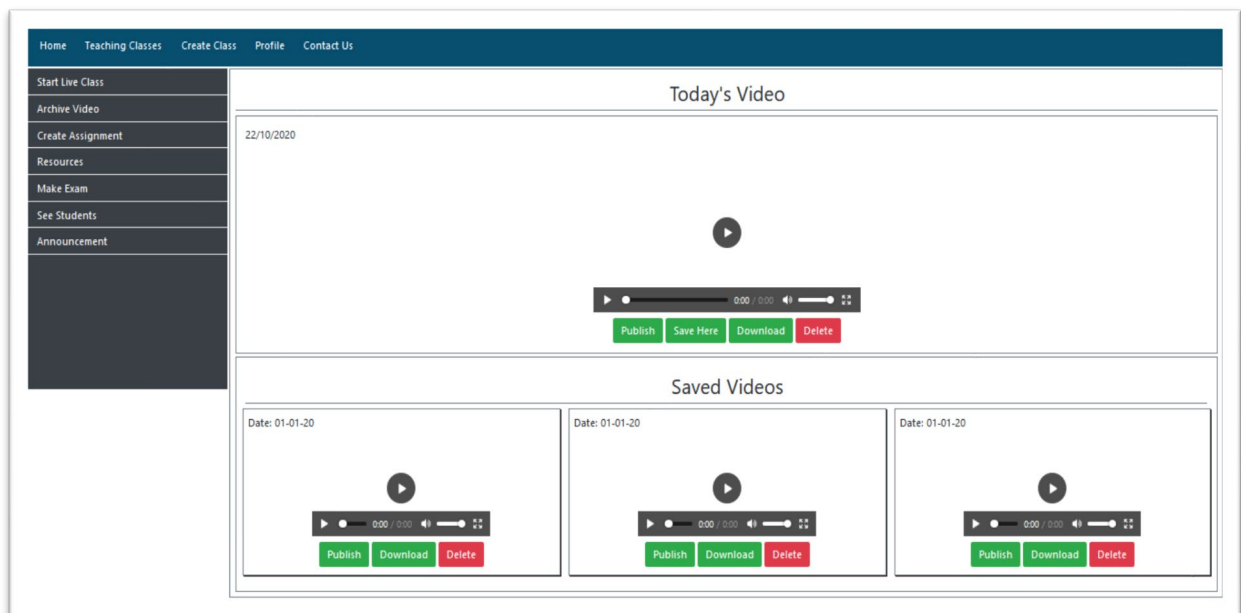


Figure 6.19 Archive Video

Here teacher will be able to store recorded video in the system. Teacher can download,

publish and delete the video from the system.

6.1.19 Create Assignment

SL	Assignment Title	Date & Time	Due On	See details	Delete
1	Lorem ipsum dolor sit amet...	01.01.20 - 9:10pm	11.01.20 - 11:59pm	See details	Delete
2	Lorem ipsum dolor sit amet...	05.01.20 - 11:10pm	15.01.20 - 11:59pm	See details	Delete

SL	Assignment Title	Submit Date & Time	Due date	Student Registration No.	Student Name	Download
1	Lorem ipsum dolor sit amet...	01.01.20 - 9:10pm	11.01.20 - 11:59pm	17010302000	XVZ...	Download
2	Lorem ipsum dolor sit amet...	01.01.20 - 9:10pm	11.01.20 - 11:59pm	17010302000	XVZ...	Download

Figure 6.20 Create Assignment

In this page teacher can create assignment with proper title, mark, submission date, instruction and can see previous published assignment and submitted Assignment.

6.1.20 Assignment Details

Assignment Title

Marks - 20

Due: 01.01.20 - 11:59pm

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Edit

Figure 6.21 Assignment Details Given by Teacher

Teacher will be able to see this page if he/she click the ‘See details’ button on previous published assignment list in create assignment page.

6.1.21 Resources

SL	File Name	Date & Time	Download	Edit	Comments	Delete
1	xyz.docx	01.01.20 - 9:10pm	Download	Edit	Comments(2)	Delete
2	abc.pdf	01.01.20 - 9:10pm	Download	Edit	Comments(2)	Delete
3		01.01.20 - 9:10pm	Download	Edit	Comments(2)	Delete

Figure 6.22 Resources Given by Teacher

In this page teacher can upload new file by clicking the ‘Upload New File’ button. Teacher will be able to see comment, can delete the previous uploaded file, can download the upload file etc.

6.1.22 Make Exam

Exam Title

[Add](#)

Add Questions

Question

Selection Type

☐ Checkbox ☐ Radio

[Add Option](#) [Add](#) [Add](#)

☐ Cras justo odio ☐ Cras justo odio ☐ Cras justo odio

☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in

☐ Morbi leo risus ☐ Morbi leo risus ☐ Morbi leo risus

[Add](#)

Quiz Exam

1.Lorem Ipsum is simply dummy text of the printing and typesetting industry

☐ Cras justo odio ☐ Cras justo odio ☐ Cras justo odio

☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in

☐ Morbi leo risus ☐ Morbi leo risus ☐ Morbi leo risus

☐ Pene et consectetur ac ☐ Pene et consectetur ac ☐ Pene et consectetur ac

☐ Vestibulum at eros ☐ Vestibulum at eros ☐ Vestibulum at eros

[Add](#)

2.Lorem Ipsum is simply dummy text of the printing and typesetting industry

☐ Cras justo odio ☐ Cras justo odio ☐ Cras justo odio

☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in

☐ Morbi leo risus ☐ Morbi leo risus ☐ Morbi leo risus

☐ Pene et consectetur ac ☐ Pene et consectetur ac ☐ Pene et consectetur ac

☐ Vestibulum at eros ☐ Vestibulum at eros ☐ Vestibulum at eros

[Add](#)

3.Lorem Ipsum is simply dummy text of the printing and typesetting industry

☐ Cras justo odio ☐ Cras justo odio ☐ Cras justo odio

☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in ☐ Dapibus ac facilisis in

☐ Morbi leo risus ☐ Morbi leo risus ☐ Morbi leo risus

☐ Pene et consectetur ac ☐ Pene et consectetur ac ☐ Pene et consectetur ac

☐ Vestibulum at eros ☐ Vestibulum at eros ☐ Vestibulum at eros

[Add](#)

Figure 6.23 Exam Making by Teacher

Here teacher can make an exam form by adding exam title, question, selection type and so on.

6.1.23 Participate Student List

Home Teaching Classes Create Class Profile Contact Us						
Start Live Class	SL	Semester No.	Registration No.	Student Name	Registration Status	Remove Student
Archive Video	1	11th	170103020000	XYZ...	Yes/Not/Not Yet	X
Create Assignment	2	11th	170103020000	XYZ...	Yes/Not/Not Yet	X
Resources	3	11th	170103020000	XYZ...	Yes/Not/Not Yet	X
Make Exam						
See Students						
Announcement						

Figure 6.24 Participate student List Accessed by Teacher

In 'See Student' page teacher can see the participate student list of enrolled students.

6.1.24 Announcement

Home	Teaching Classes	Create Class	Profile	Contact Us
------	------------------	--------------	---------	------------

Start Live Class
Archive Video
Create Assignment
Resources
Make Exam
See Students
Announcement

22/10/2020

Create New Announcement

Write Something

Publish

Published Announcement

Date:- 01.01.20

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum

Student Name
This is a test message Oct-20
Teacher Reply
This is a test message Oct-20

Comment


Add Comment

Edit Delete

Figure 6.25 Announcement Created by Teacher

Here teacher can create any type of announcement, can see the published announcement, comment of student and can reply the comment also.

6.1.25 Teacher's Profile

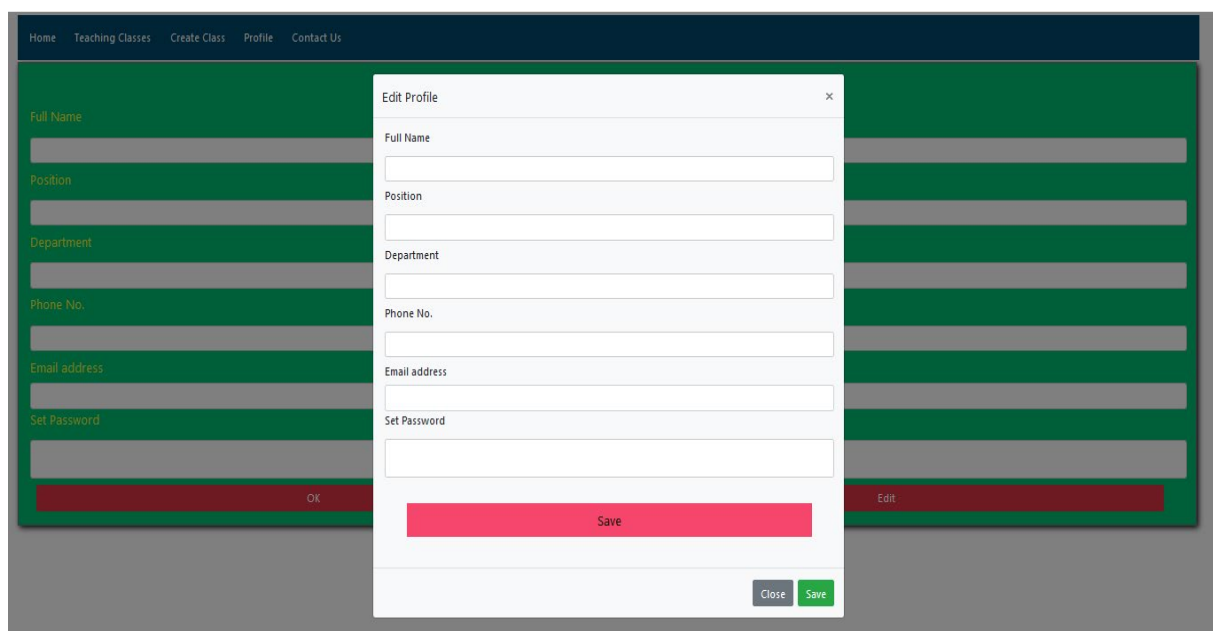


The image shows a web interface for a 'Teacher Profile'. At the top is a dark blue navigation bar with links: Home, Teaching Classes, Create Class, Profile, and Contact Us. Below this is a green header area with the title 'Teacher Profile' in yellow. The main form area has a green background and contains several white input fields with yellow labels: 'Full Name', 'Position', 'Department', 'Phone No.', 'Email address', and 'Set Password'. At the bottom of the form are two red buttons: 'OK' and 'Edit'.

Figure 6.26 Teacher's Profile

Here teachers will be able to see his/her profile and will be able to edit his/her profile.

6.1.26 Profile Edit



The image shows a web interface with a dark blue navigation bar (Home, Teaching Classes, Create Class, Profile, Contact Us) and a green background. A white modal dialog box titled 'Edit Profile' is open in the center. The dialog contains the same labels and input fields as the main form: 'Full Name', 'Position', 'Department', 'Phone No.', 'Email address', and 'Set Password'. Below these fields is a large red 'Save' button. At the bottom right of the dialog are two small buttons: 'Close' and 'Save'. The background form is dimmed and shows 'OK' and 'Edit' buttons at the bottom.

Figure 6.27 Profile Edit by Student

6.1.27 Join Class

Figure 6.28 Join Class by Student

6.1.28 Class Enroll

Figure 6.29 Class Enrolled by Student

After click the 'Enroll' button student will be able to see all the enrolled courses which he/she has been taken and after click the 'Go Inside' button student will go the dashboard (given below) page where he/she will see the all facility of our platform.

6.1.29 Student Dashboard

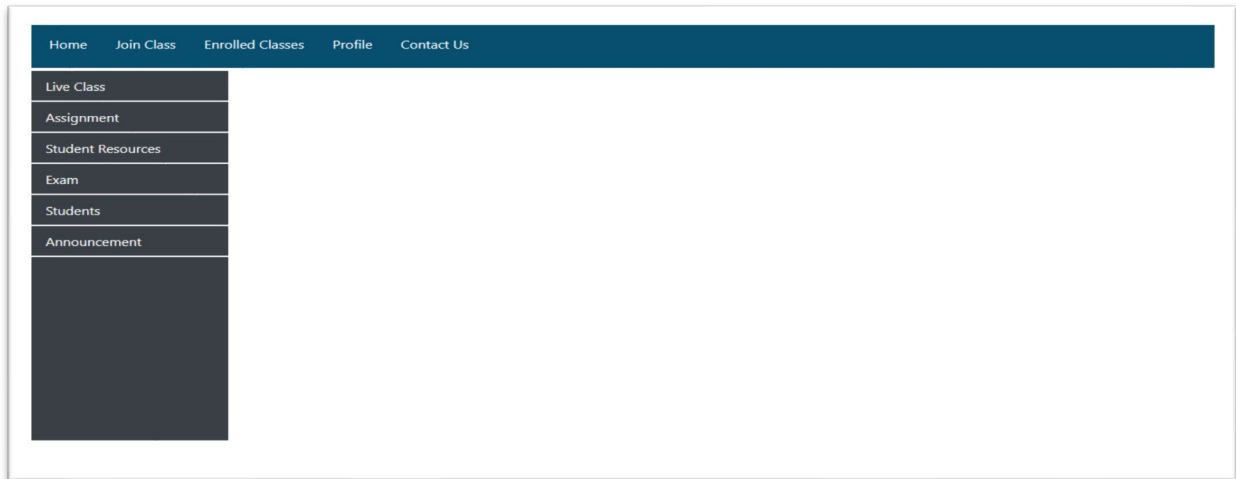


Figure 6.30 Class Activity

6.1.30 Assignment Submission

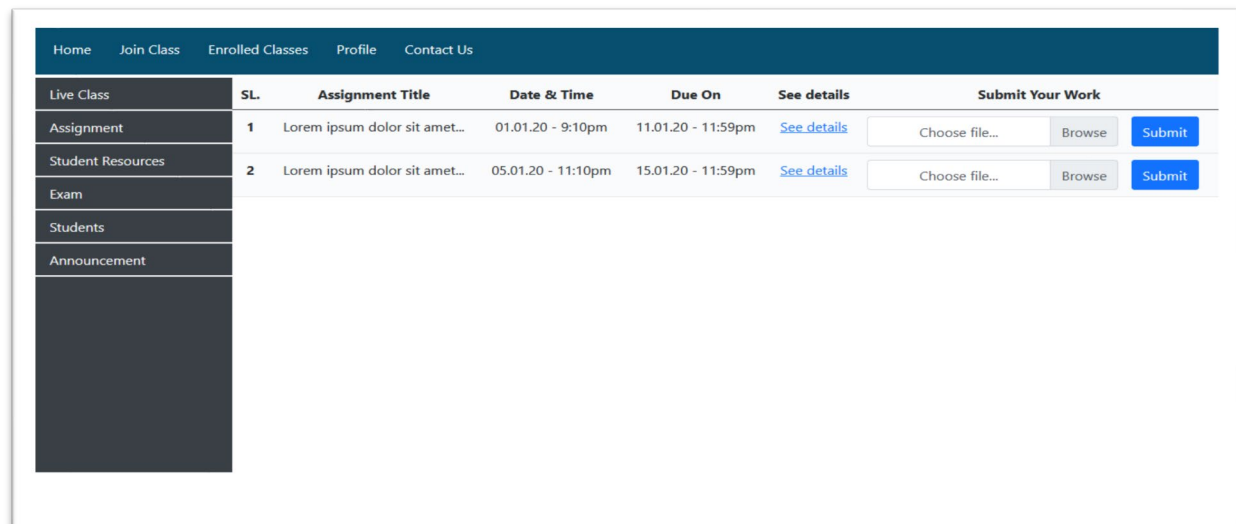


Figure 6.31 Assignment Submitted by Student

In this page student will be able to see the assignment which was published by the teacher and he/she can submit the assignment from this page.

6.1.31 Assignment Details

Home

Join Class

Enrolled Classes

Teaching Classes

Create Class

Profile

Contact Us

Live Class

Assignment

Files

Video Files

Exam

Students

Announcement

Assignment Title

Marks - 20

Due: 01.01.20 - 11:59pm

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Submit Your Work

Choose file...

Submit

Figure 6.32 Assignment Details for Student

By clicking the ‘See Details’ button of previous assignment submission page students will be able to see about details of published assignment. From here, student can also be able to submit the assignment.

6.1.32 Student Resources

Home

Join Class

Enrolled Classes

Profile

Contact Us

Live Class

Assignment

Student Resources

Exam

Students

Announcement

File Type

mm / dd / yyyy

Search

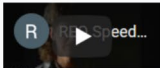
SL.	File Name	Date & Time	Download	Comments
1	xyz.docx	01.01.20 - 9:10pm	Download	Comments(2)
2	abc.pdf	01.01.20 - 9:10pm	Download	Comments(2)
3		01.01.20 - 9:10pm	Download	Comments(2)

Figure 6.33 Student Resources Accessed by Student

In this page, here student will be able to access all kinds of resources like video, pdf file, pptx, doc file, txt file etc.

6.1.33 Attend Exam

Figure 6.34 Exam Paper for Student

In this page, student will be performing the exam which was created or announced by course teacher.

6.1.34 Student Participate List

Home	Join Class	Enrolled Classes	Profile	Contact Us
Live Class	SL	Semester No.	Registration No.	Student Name
Assignment	1	11th	170103020000	XYZ...
Student Resources	2	11th	170103020000	XYZ...
Exam	3	11th	170103020000	XYZ...
Students				
Announcement				

Figure 6.35 Student Participate List

Here student can see the other's student participate in the classes.

6.1.35 Get Announcement

Figure 6.36 Student Get Announcement

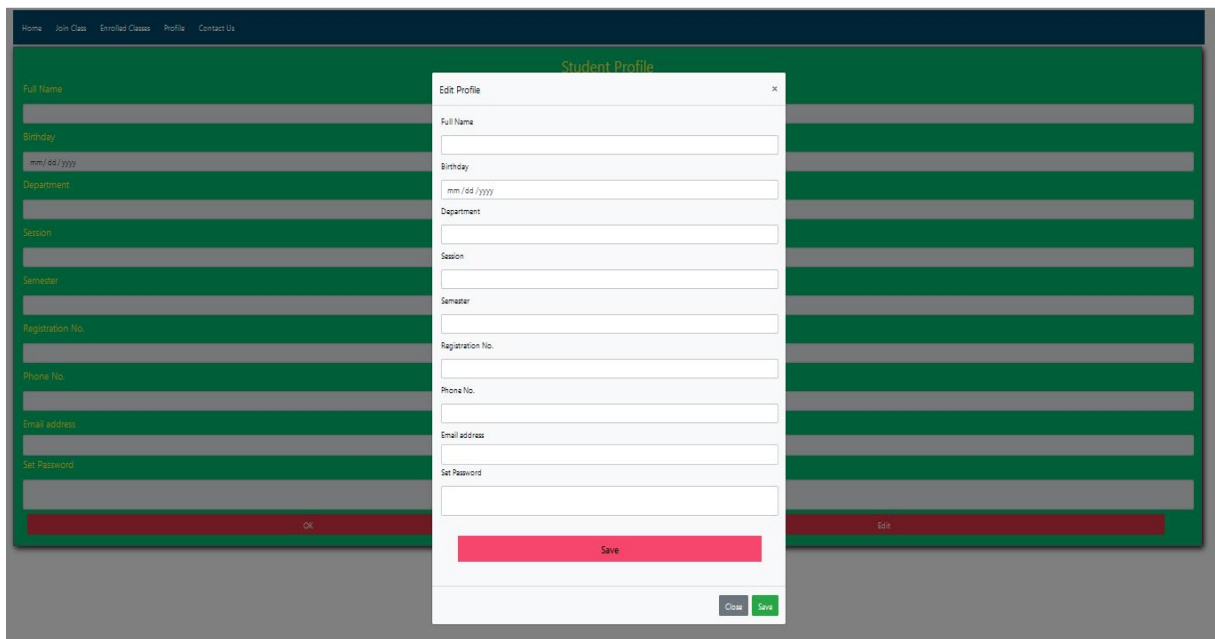
In announcement page, student can see the published announcement by the teacher and can comment and reply into the announcement.

6.1.36 Student Profile

Figure 6.37 Student Profile

Here student can see his/her profile and can edit that also.

6.1.37 Student Profile Edit



The screenshot displays a web application interface for editing a student profile. The background is a dark green sidebar with a navigation menu containing 'Home', 'Join Class', 'Enrolled Classes', 'Profile', and 'Contact Us'. The main content area has a light green header with the title 'Student Profile'. Below the header, there is a form with the following fields: Full Name, Birthday (with a date picker), Department, Session, Semester, Registration No., Phone No., Email address, and Set Password. A modal window titled 'Edit Profile' is open in the center, containing the same set of fields for editing. The modal has a red 'Save' button at the bottom and 'Close' and 'Save' buttons at the bottom right. The background form has a red 'OK' button at the bottom left and a red 'Edit' button at the bottom right.

Figure 6.38 Profile Edited by Student

When student click the edit button a popup window will be shown. Here student can edit his/her necessary information which he/she wants to add into the profile.

6.1.38 Contact US

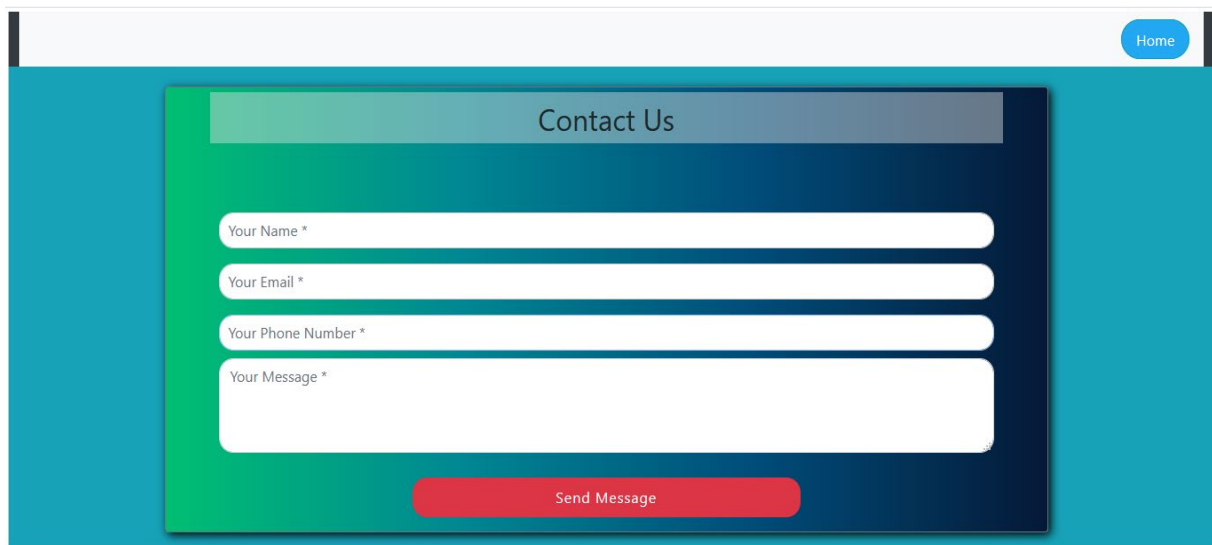
The image shows a web interface for a 'Contact Us' form. At the top right, there is a blue 'Home' button. The main content area has a teal background. In the center, there is a dark blue rounded rectangle containing a form. The form has a title bar that says 'Contact Us'. Below the title bar, there are four input fields: 'Your Name *', 'Your Email *', 'Your Phone Number *', and 'Your Message *'. The 'Your Message *' field is a larger text area. At the bottom of the form, there is a red button labeled 'Send Message'.

Figure 6.39 Contact Us

Contact page can use both student and teacher. By using this form teacher and student will be able to contact with admin for any kind of query.

6.1.39 WebRTC Host Interface



Figure 6.40 Initial Interface both Host and User

This is the initial interface both host and user. Here only ‘Start Connection’, audio and ‘Start Camera’ function will be work.

6.1.40 One to One Connection

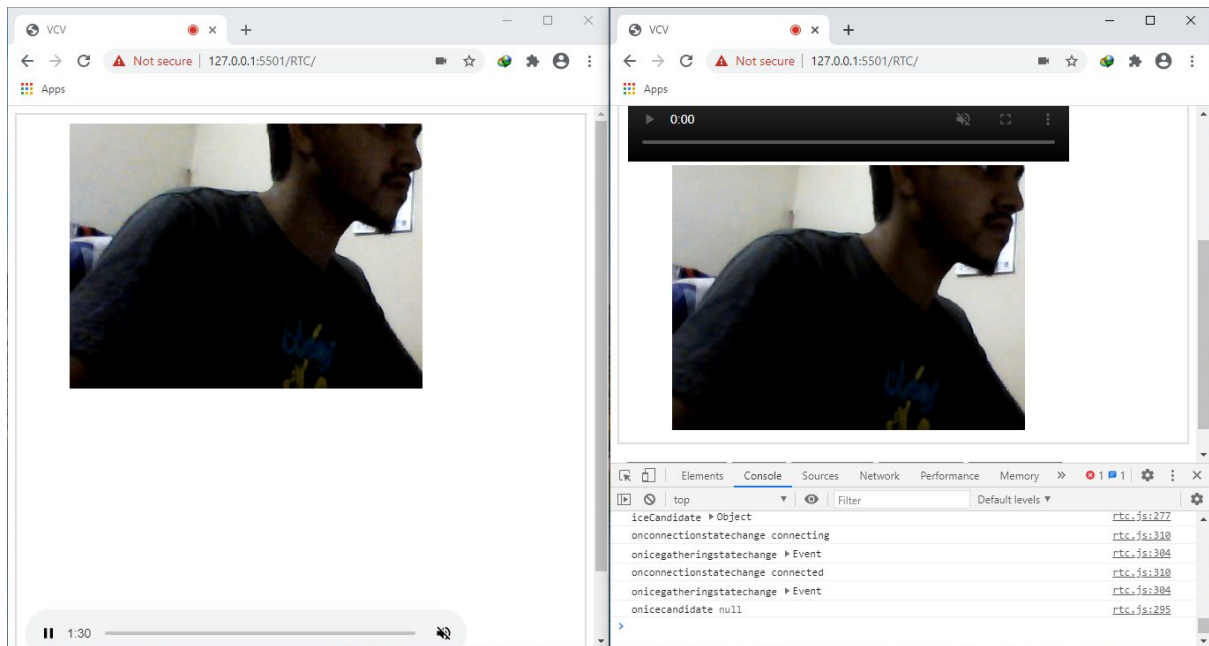


Figure 6.41 Connection Between Two Browser

Here we can see from the above figure that two browsers have connected with each other. The present situation of webrtc part is only two browsers will be connected. So far, we have completed the work of peer to peer connection. Before that when host click the ‘Start Connection’ button the user will get a message and after confirmation meeting will be started. If host want to mute his/her audio input than host will be able to do it by clicking ‘Mute’ button. Host also will be able to off his/her camera.

We have not got enough time to work for multipair connection. But in future we will try our best to complete multipair connection and also try to complete our main feature functionalities.

Chapter 7

TOOLS USED

7.1 Overview

In this chapter, we will discuss the tools used to develop the application.

- **Hardware**
 - ✓ Desktop Computer
 - ✓ Laptop Computer

- **Software**
 - ✓ Visual Studio Code
 - ✓ Notepad++
 - ✓ Pixi
 - ✓ Light Shot
 - ✓ Web browser

- **Language**
 - ✓ HTML
 - ✓ CSS
 - ✓ Bootstrap5(Alpha Version)
 - ✓ JavaScript
 - ✓ Nodejs

- **Network**
 - ✓ Have a good internet connection

7.2 Compatibility

This application is compatible with all browser which have current windows version or above.

Chapter 8

CONCLUSION

“Virtual Class Venture” is a web-based video conferencing platform for educational institution. Our main goal is to create an application that will helps an educational institution to continue learning online as well as offline. We have already completed full frontend part and also have completed the one to one connection of host and user. Some other helpful features are added to this project. In the future, we will work multipair connection, screen-sharing facility, record live streaming, audio mute-unmute etc. If we succeed to add all these features, I think this application will be very helpful to an educational institution.

REFERENCE

Books:

- [1] Roger S. Pressman, (2009). Software Engineering: A Practitioner's Approach (7th ed.).
McGraw-Hill Education
- [2] Ian Sommerville, (2010). Software Engineering (9th ed.). Addison-Wesley

Website Link:

- **Zoom:** <https://zoom.us/>
- **Skype:** <https://www.skype.com/en/>
- **Google Classroom:** <https://classroom.google.com/h>
- **WebRTC:**
 - ✓ WebRTC: <https://webrtc.org/>
 - ✓ PeerJS: <https://peerjs.com/>
 - ✓ HTML Rocks: <https://www.html5rocks.com/en/tutorials/webrtc/basics/>
 - ✓ JS Library: <https://sipjs.com/>