Elections Portal 2021

Online Voting Platform to conduct **Gymkhana Elections 2021.** Designed and Developed for smooth and secure conductions of Elections in an online format.

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Project Brief

Due to Covid 19 Pandemic, Election Commission decided to host the yearly Gymkhana Elections in an Online Format. The project was aimed to achieve smooth conduction of 2021 Elections.

Elections Portal was divided in Pre-Election Website and Elections Website:

The Pre Election Website was aimed to display agendas, rules and regulations and statistics for the elections.
The Elections Website verified users using face detection algorithm, geolocation detection, allowed users to vote for their selected candidates using an **4 Layered Encrypted System**, and Decrypt the Elections Vote Count..

Tech Stack

Backend: Python, Django, Celery, Postgres, Redis
Frontend: HTML, Tailwind, Jquery, Javascript, Anime.js, Charts.js, CSS
Hosting: Nginx and AWS

Duration

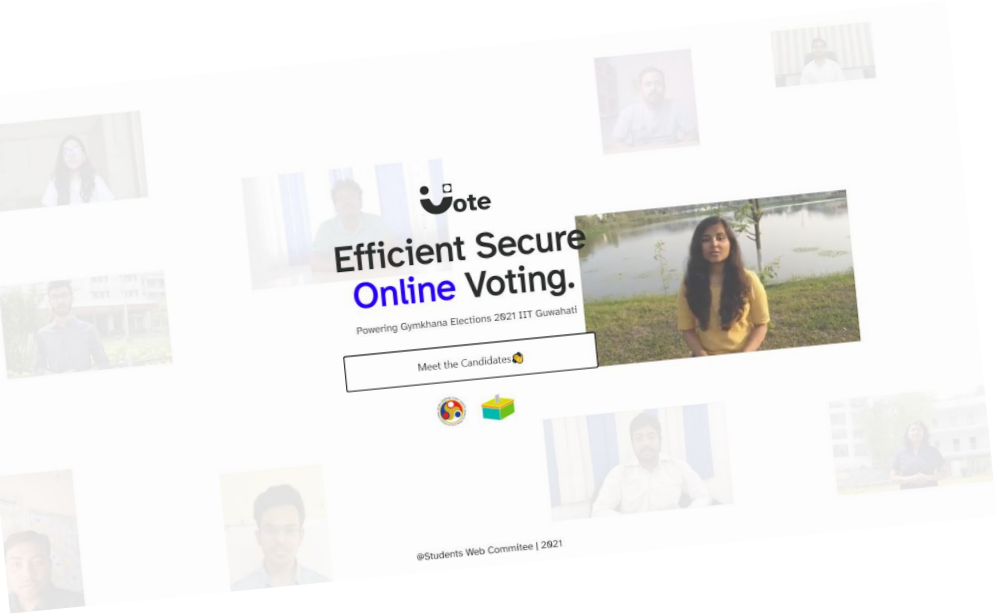
December 2020 - February 2021

Website

https://swc.iitg.ac.in/election/

My Work in Elections Portal

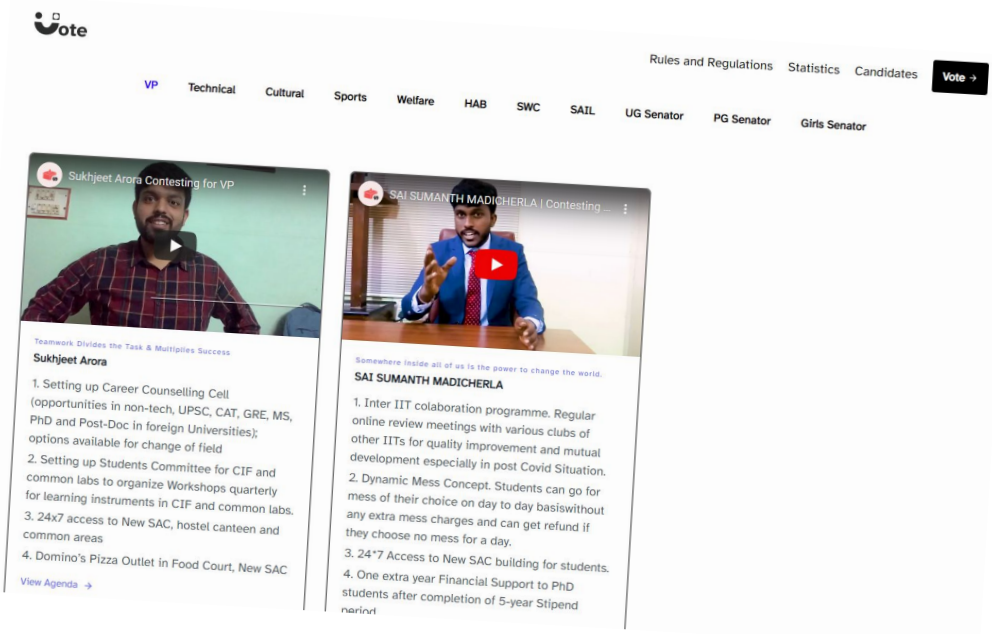
I worked on the User Interface and Frontend Development for the Portal. I started with understanding the user flow for the voting process, learning CSS flex box, CSS grid system, style sheet, micro interactions using jQuery, and then wrote a basic HTML code for frontend of each page. Later, the CSS part was added into each page. Having done that, I spent quite a bit of time integrating each page with the backend written in Django. The CSS and JS files were stored as static files inside the static folder for each application. Once this was done, then the more precise details like the fonts and custom colors were added to each page. Finally, the interactions were added using jQuery and Materialize css. Also, after the project was completed, I had made a tutorial video for the campus junta to give a walkthrough of the voting process using the designed portal.



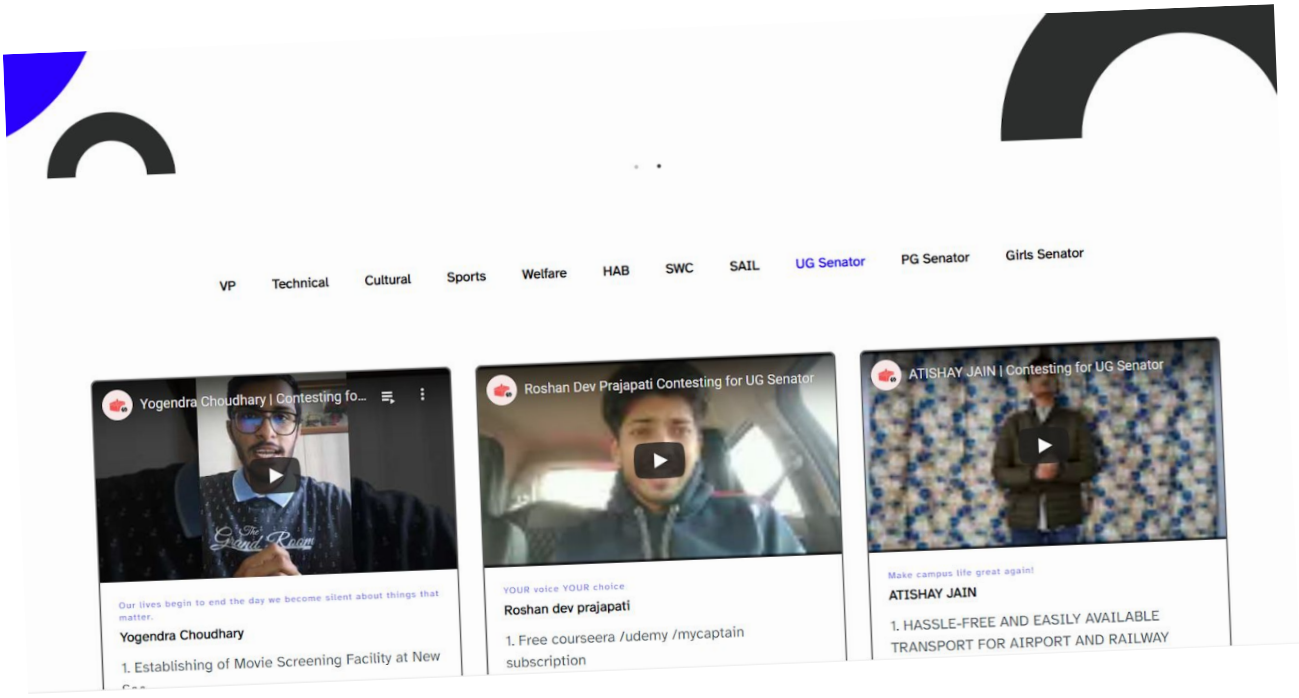
The Pre-Election Portal

Website which allowed students to view candidate videos and agendas simultaneously and make decisions related to the election day.

The website had dynamic interactions which users could interact with. The background images when hovering users could play the video of past year agenda giving them a great user experience. I worked on the animations and frontend code using Jquery and Anime.Js



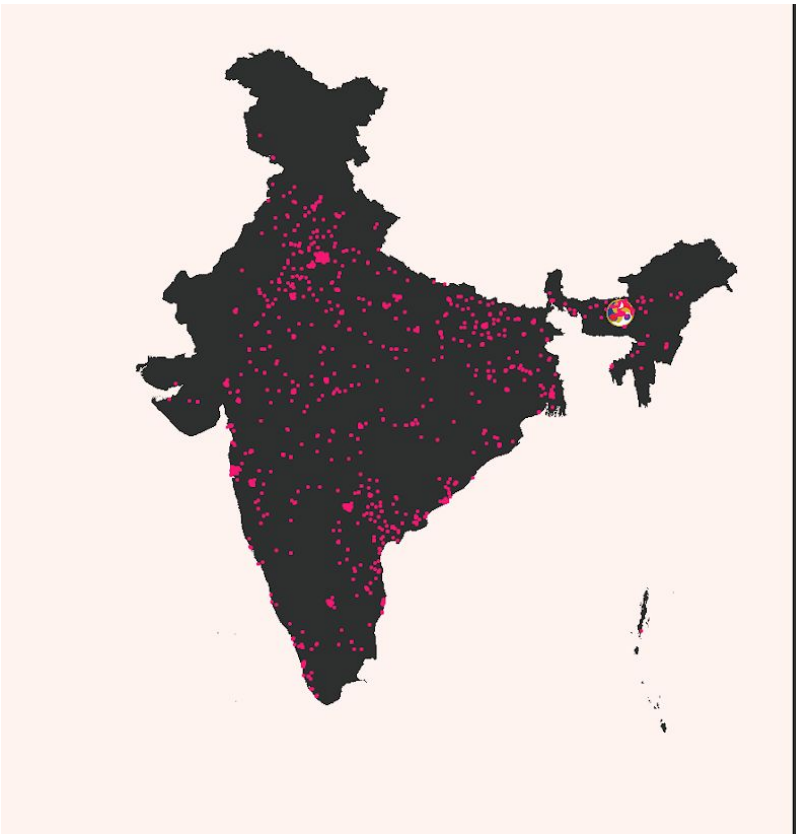
The Candidates page shows top agendas of participating candidates along with videos which can be played directly from the website. I worked on the implementation of the page. The page being asynchronous, the content which was loaded was managed by using Javascript and Jquery.

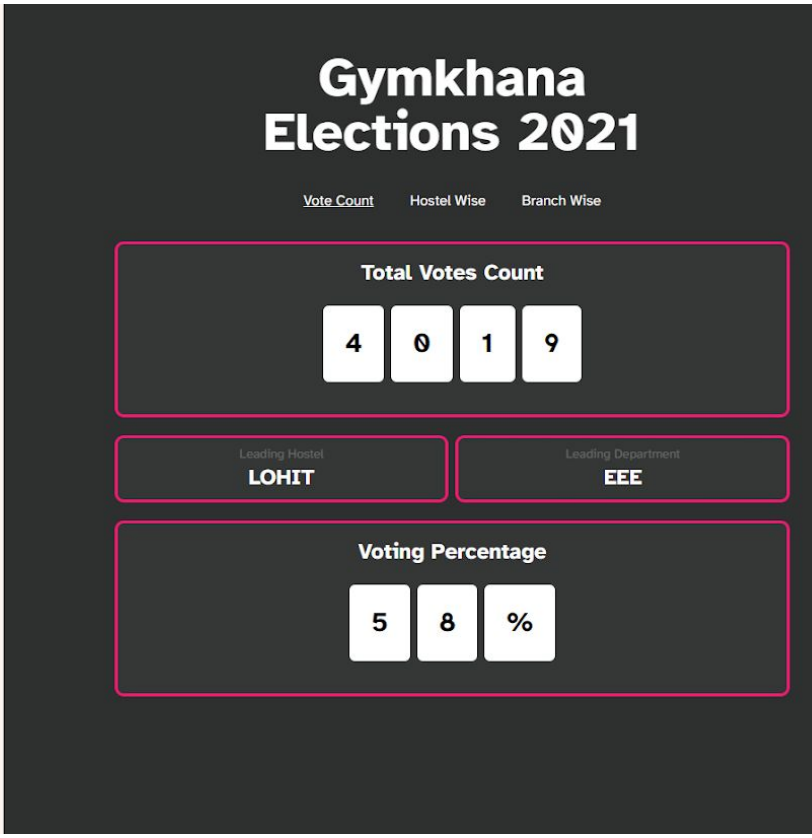


The page also had links to Rules and Regulations which was made using Gitbook for quick and easy integration.

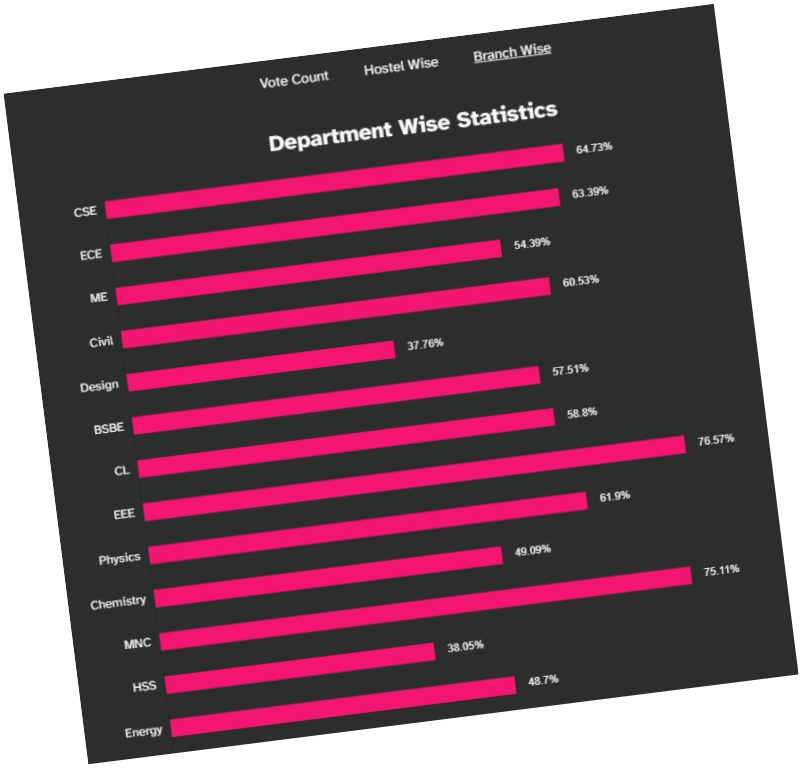
The Statistics Page

We displayed live statistics during elections, including Vote Count, Vote Distribution Graph and Live Location Map for students to see the status and extent of 2021 Online Elections. The Map was developed using mapbox APIs and Ajax Requests to live update the website. The leading hostels and departments were also shown for giving off the awards for “Jagruk Hostel” and “Jagurk department”.





We reached 4019 count at the end of the day which was an all time highest!!



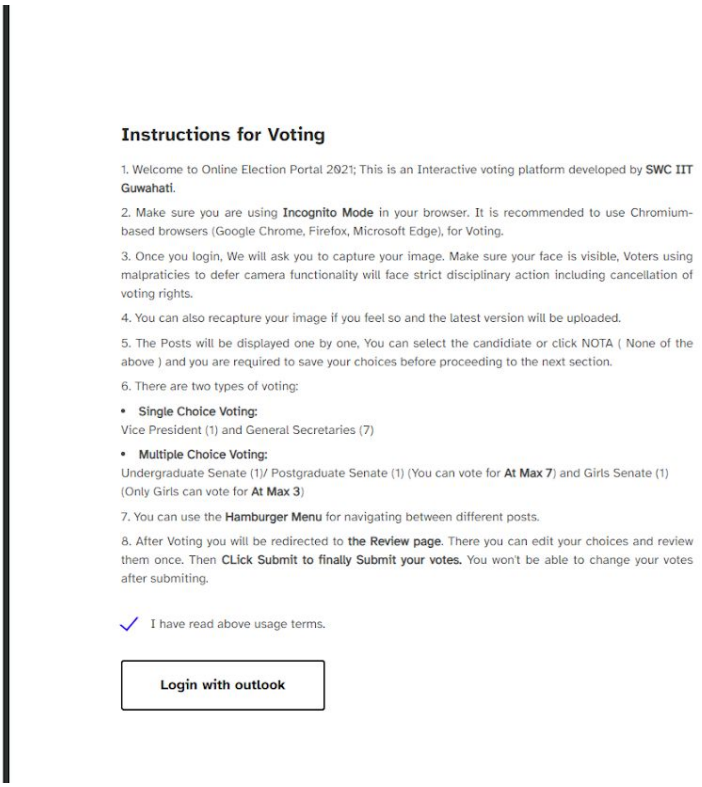
Displaying Department wise statistics and Branch wise statistics based on live vote count was also done for the voters to know about their fellow competing branches and hostels.

The graph plotting was done using charts.js which is a javascript library used for plotting statistical graphs and charts. The data was asynchronously updated using AJAX calls of Jquery.

The Election Portal

The central website which students used to vote on election day. The Major challenge in implementation was to get the things aligned for a neat presentation of the page. This was implemented using Flex-Box and the classes were from Tailwind CSS.

Gymkhana Elections 2021



Instructions for Voting

1. Welcome to Online Election Portal 2021; This is an Interactive voting platform developed by **SWC IIT Guwahati**.

2. Make sure you are using **Incognito Mode** in your browser. It is recommended to use Chromium-based browsers (Google Chrome, Firefox, Microsoft Edge), for Voting.

3. Once you login, We will ask you to capture your image. Make sure your face is visible, Voters using malpraticies to defer camera functionality will face strict disciplinary action including cancellation of voting rights.

4. You can also recapture your image if you feel so and the latest version will be uploaded.

5. The Posts will be displayed one by one, You can select the candidiate or click NOTA (None of the above) and you are required to save your choices before proceeding to the next section.

6. There are two types of voting:

- **Single Choice Voting:**
Vice President (1) and General Secretaries (7)
- **Multiple Choice Voting:**
Undergraduate Senate (1)/ Postgraduate Senate (1) (You can vote for **At Max 7**) and Girls Senate (1) (Only Girls can vote for **At Max 3**)

7. You can use the **Hamburger Menu** for navigating between different posts.

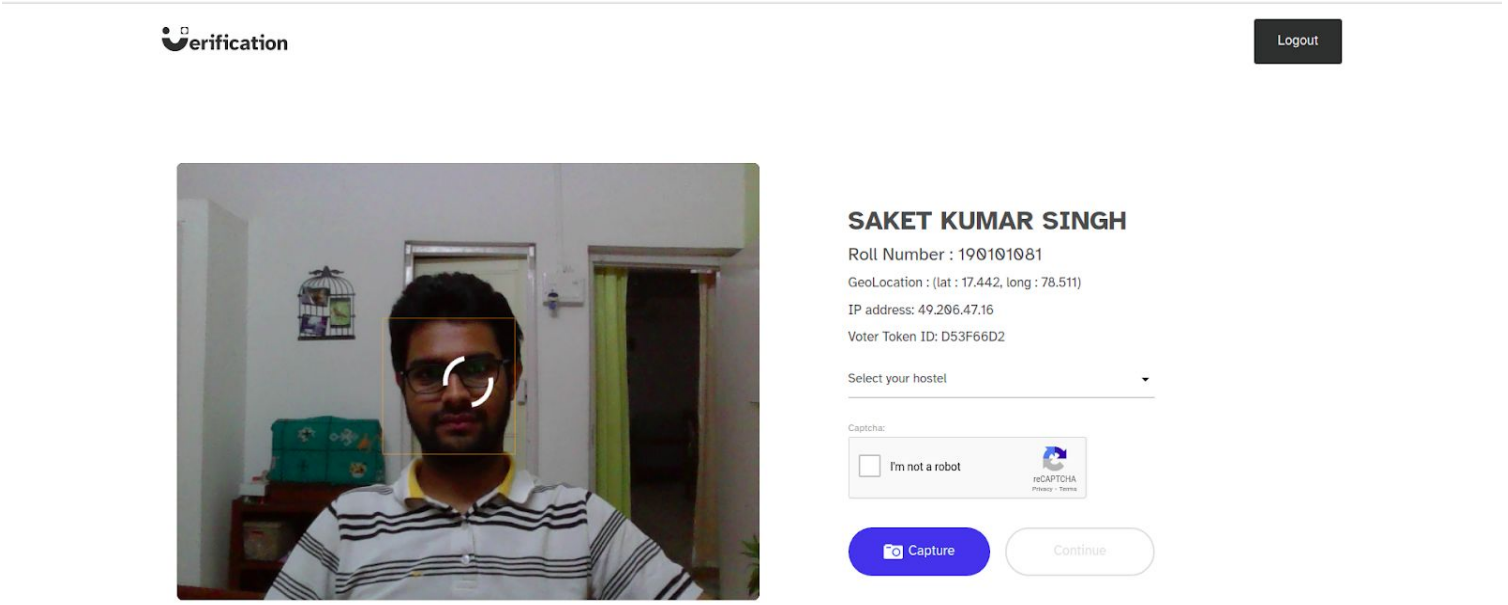
8. After Voting you will be redirected to **the Review page**. There you can edit your choices and review them once. Then **CLick Submit to finally Submit your votes.** You won't be able to change your votes after submiting.

I have read above usage terms.

Login with outlook

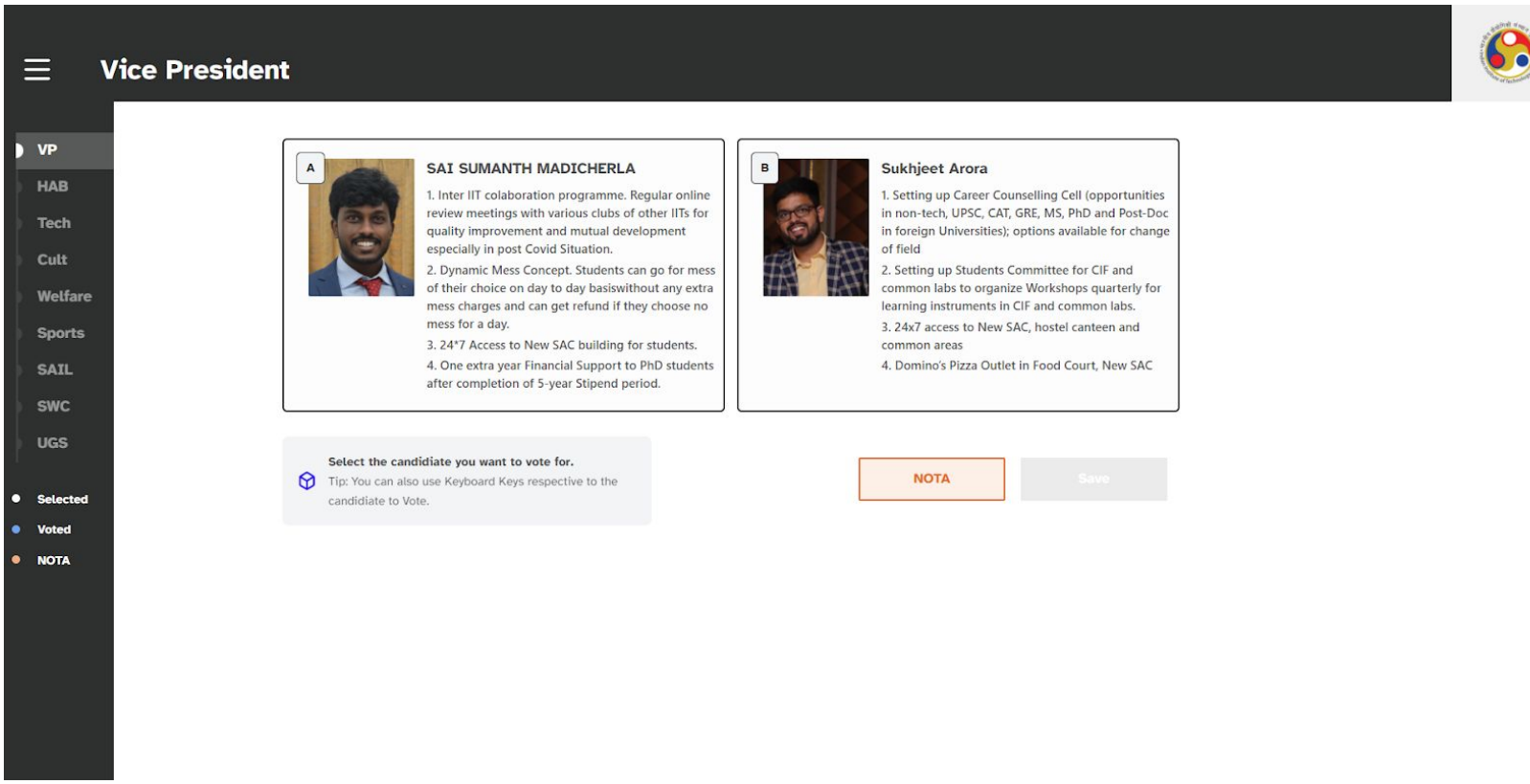
Verification

Verification Using Camera and Image Recognition for Image Capture and Geolocation. The webcam access was done using the canvas tag. There was also an option to recapture which was implemented using JavaScript. Also, the continue button was displayed until the location access and image verification was not completed. This too was done using JavaScript.

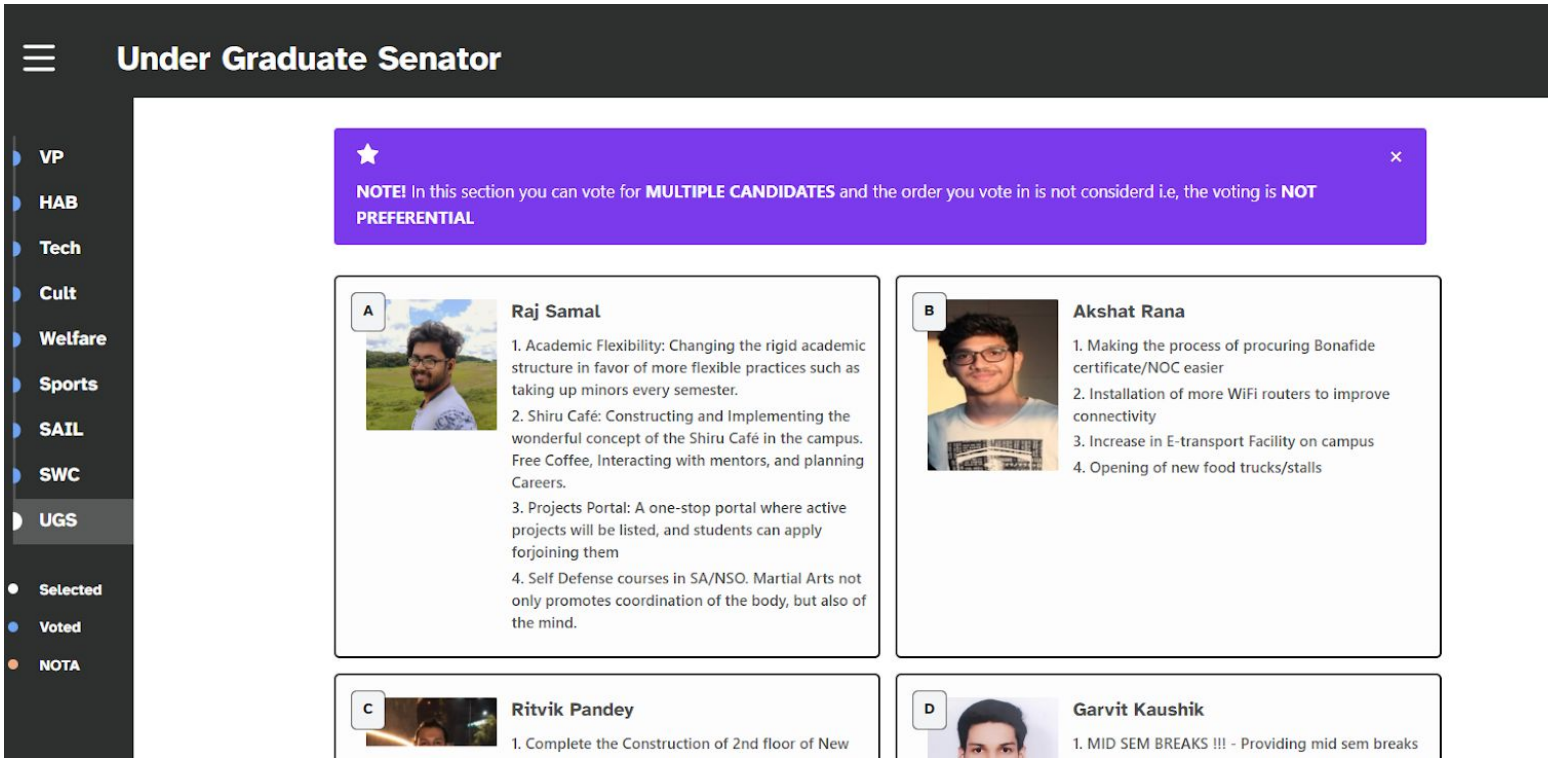


Voting Page

A simple voting page with great micro interactions allowed users to vote and navigate across various sections. The layout of the page was made using the flex box of CSS.



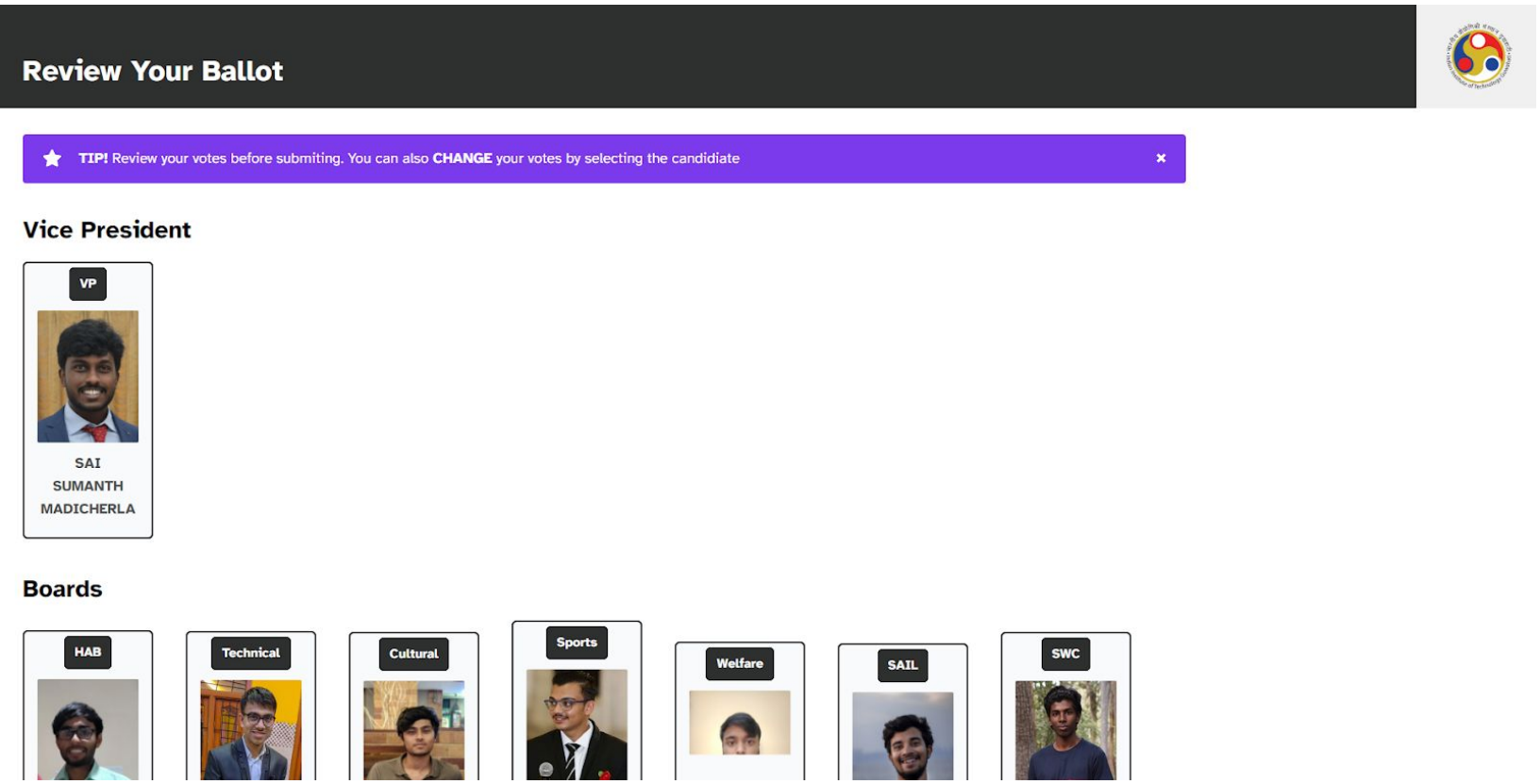
There were two kinds of voting: Single Candidate and Multiple Candidate(s). The latter was only for the senate posts. The content in the information box was dynamically updated using JavaScript. Also, the save button is activated only when the user has selected to vote for some candidate or opted for Nota. The animations for Nota, and on selecting a candidate were handled by Jquery. A notification also appeared in the form of pop-up giving the user required information regarding what to do next upon choosing any of the options. In case of multiple candidate voting, on selecting more than the required candidates an alert was raised to the user.



Review Page

Finally, the last page was for the voters to review their selected choices. The candidate(s) against each post. The user had an option to change his/her vote by clicking on it. This would redirect them back to the voting page with their previous option selected. Now, the voter can change the candidate if they wish to and on clicking save they are once again redirected to the review page.

The user might review as many posts as they wish as many times as they want in a similar manner. The interactions in this page too are handled by Jqeury. And the layout is a typical FlexBox layout made using tailwind CSS.



My Learning Experience

As a UX and Front End Developer I learned to create websites under deadlines. The portal was designed to reflect trust among users that their data is secured and voting is unbiased. We were quite successful in that. Managing the Product, Integration of the Front End with the Backend and finally the Deployment was along with a great experience.
I came to know about many wonderful front end technologies like Tailwind Css and charts.js library. Materialize CSS was also of great help in making the notifications for each page.
Needless to mention, this project has highlighted to me the importance of collaboration in development. A complete website like this is only after when we as developers exchange our ideas and therefore collaborate!