IIT PATNA WEBSITE PROJECT

Session 2017-18

(1st Year, Autumn Semester)

Team members : Vatsal Singhal, Akshat Jain, Deepanjan Datta

Leader and mentor : Mr. Vipin Mavi, Vice President, Student Gymkhana, Year 2017-18

Overview

This project is a website featuring the utilities and facilities offered by IIT Patna. This website has potential to act as a kiosk for IIT Patna fraternity.

Goals

1. To provide all facilities and services offered by IIT Patna online at one place, so that it becomes easy for anyone to take full advantage of these facilities.
2. To provide a way for the handicapped (mainly blind and physically disabled people) to access all the facilities and services which are accessible by the normal people.
3. To provide multilingual support to all people living in India to access the website in their local language.

Our Contribution

I. Revamped the frontend of entire website

Added animations and effects to different components in all the pages.

What we learnt :

- JavaScript libraries like AOS (Animate on Scroll), Random.js, etc
- Advanced CSS and JavaScript animations
- Learnt about user friendly flat design for websites
- Advanced use of JQuery for increasing interactivity of the website

II. Database Management through MongoDB

We created a database on mLab for free database hosting online. We chose MongoDB because of its flexibility and ease of access. We made a lot of real time booking portals for various purposes like booking cars, getting appointment from doctors, for issuing sports equipment, reserving sports grounds, etc. This also helps to check real time booking status. We also made database retrieval systems through MongoDB which helps students to keep themselves updated with various important things like doctors' schedules, medical inventory, timetable, etc. These databases can be easily updated by the respective authorities. We wrote a script for making the data uploading process easier for layman users.

What we learnt :

- Usage of MongoDB with Node.JS
- Usage of AJAX and JSON
- Creating web templates for dynamically retrieving data through MongoDB using EJS
- Dealing with synchronous and asynchronous queries and AJAX requests

III. Added Voice Recognition across entire website

We added voice recognition to enable users to interact with the website using voice commands. This improves the user experience as the user can now easily filter the database using voice commands to get the desired result. For example, the user can easily filter out information about particular classes through querying the database using multiple combinations (branch, day, time, subject, faculty, room number, course number, course name, etc). Another thing which can be achieved using this could be to filter out a particular student's information from an entire database of thousands of students just by speaking out his/her name or roll number.

What we learnt :

- Usage and application of APIs - when and when not to use them
- Searching for a suitable API for our project
- Speech Recognizer API
- Usage of advanced data structures like trees, heaps, etc for filtering out data using voice support
- Using the output of the API to achieve desired goals

IV. Added Multilingual Support

We added multilingual support to make the website more accessible for people not well versed with English language. This feature not only changes the text content of the website but also makes speech recognition accessible in selected language. This improves the user experience as the user can now not only browse the website in his/her local language, but also interact with the website by giving voice commands in his/her local language.

What we learnt :

- Usage of HTML IDs and Classes
- Good development practices like avoiding hard coding, having separate text files for text material, etc as it makes making any future changes easier.
- Translation principles using NLP

V. Implementation of Real Time System

We implemented a transportation system which tracks the buses in real time so that the people can board the buses accordingly and with ease.

What we learnt :

- Multithreading
- Handling synchronous and asynchronous queries

Overall Learning Experience

- We learned how to handle large projects within deadline limits.
- We learned a lot about good practices of development.
- We learned how to work under pressure.
- We learned teamwork as we 3 people worked together in sync with each other.
- We learned time management.

Special Thanks to our Mentor (Vipin Mavi, VP Gymkhana, Year 2017-18)

Mr. Vipin Mavi (BTech Batch CSE 2014) was of great help and guided us a lot all throughout the project. He always kept us motivated. He always helped us whenever we faced any difficulties. All 3 of us highly appreciate the fact that he helped us in our freshmen year by channelising our energy in the right direction.

Also, special thanks to Mr. Gagan Kumar and Mr. Naman Agarwal for helping us everytime we stuck at any part of the project.

This project was really exciting. We learnt a lot from this project. We really appreciate that we were given the chance to work on this project.

We wish Mr. Vipin Mavi, Mr. Gagan Kumar and Mr. Naman Agarwal all the very best for their future endeavours.

Regards,

Vatsal Singhal

Akshat Jain

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