Governors State University
OPUS Open Portal to University Scholarship

All Capstone Projects   Student Capstone Projects

Spring 2017

Digitized Engineering Notebook

Mounika Reddy Bolla
Governors State University

Akhila Ganumpally Mekala
Governors State University

Sandeep Sadhu
Governors State University

Deepika Yenugu
Governors State University

Follow this and additional works at: http://opus.govst.edu/capstones

🎨 Part of the Computer Sciences Commons

ABSTRACT

Digitized Engineering Notebook is a website application which converts laboratory observation records in a paper notebook to digitalized format. It contains information like text, multimedia graphics, images, and data in a database. Users can collaborate to create and edit files online.

For this project, we provided an admin panel. Admin can only create the projects and add team members to a corresponding project, and perform various actions. And we also provide login credentials for each team member to log in into their corresponding project. Each team member can upload pictures of hand written laboratory record. So, they can assign those pictures to the particular table of content (index), and also, they can view, delete and update those pictures. Each team member can interact with other team members at a discussion room.

Table of Content

1. Feature Description

Digitized engineering notebook is the application we have developed. This application is useful for all the students especially, because there are the ones who study and wanted to store their material online. This application helps all of us to store their material online or we can say digitized. This project consists of user and admin.

Admin - The admin plays an important role where admin can add or delete projects, enable, disable Log activity of the team members and admin will assign their default credentials (Passwords, Username) to each team member. Admin can view the information of the team members and can add events also.

User – The team members (Students) can access the digitalized engineering notebook with their credentials where the team member can add and update their data. The team member can update their default login credentials assigned by admin.

User Activities:

- ➢ Login
- ➢ Upload text and images
- ➢ Remove Text or images
- ➢ Internal chat
- ➢ Logout

Admin Activities:

- ➢ Login
- ➢ Add Project
- ➢ Add Team Members to the Project
- ➢ Remove Project
- ➢ Remove or Block Team Member
- ➢ Logout

1.1 Competitive Information

Our competitors can be the engineering notebook which is available in the market. Our application can compete with those engineering notebooks because it has more features like log activity (Login and Logout details) of the team members, add team members, view team members, events and projects and the portal is friendly to use where team members can add data in the form of text and images. By considering all the features we can say that our portal is different and have more features from other portals.

1.2 Relationship to Other Applications

Our digitized engineering notebook is somewhat related to the online notebook and zoho notebook. These are websites which have similar services for users. They can access the websites with their credentials from any location. These Applications/Projects is related to the universities portal where the information of the students is maintained. By taking GSU portal as baseline, this project is designed. This portal will have all the details of the team members.

1.3 Assumptions and Dependencies

In our project Users completely depends on Admin, where Admin has the rights to create project, add team members and schedule events. Admin must provide default login credentials to user, later user can change their login credentials after logging with their default credentials assigned by Admin. By the above details we can assume that user is dependent on admin.

1.4 Future Enhancements

We will make few changes in the future based upon the requirements of the users. We will offer more services for users in the future.

1.5 Definitions and Acronyms

➢ PHP: Hypertext Processor
➢ HTML: Hypertext markup Language
➢ SQL: Structured Query Language
➢ JS : Java Script

2. Technical Description

2.1 Project/Application Architecture

Our application is a web based application which works on the PHP platform. Our main agenda of developing this application is to make our work easy by storing our work online. Instead of maintaining the written notes and notebooks it's a struggle so we have decided to develop an application to store the project records digitized. Our application is a three-tier architecture which is highly secured, operated in three different layers a) Client Browser, b) Web server c) database. All the process of data storing, retrieving, requesting and responding to client depends on the architecture.
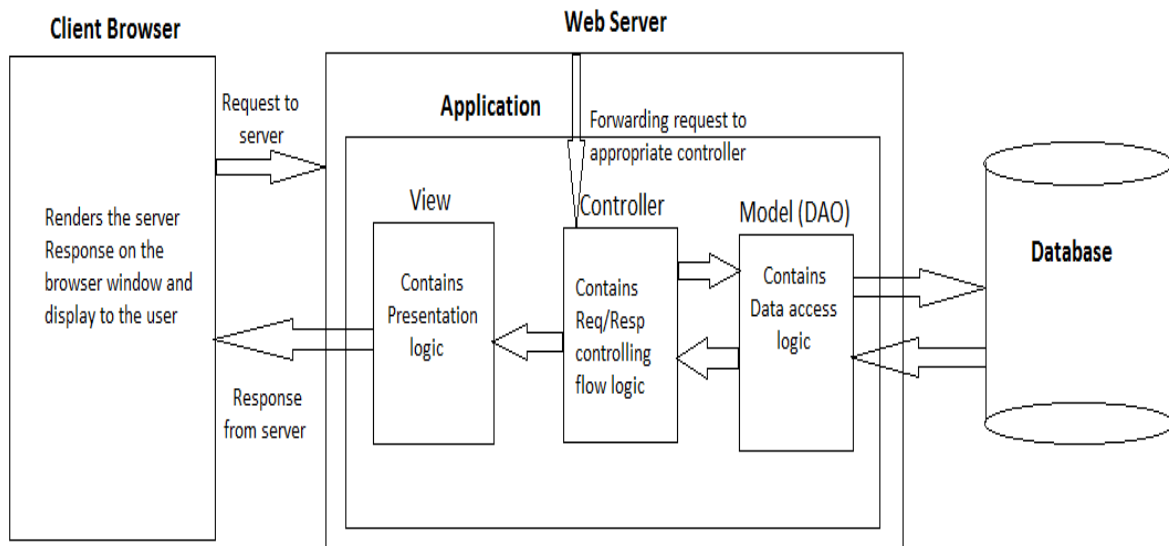
Project architecture

This application is being developed using PHP (Hypertext Preprocessor) which is a scripting Language used to develop web applications. This is an open source language, easy to use. Currently, we are using PHP version 5 which supports concepts related to object-oriented programming language, html, CSS, java script and the hypertext pre-processor code. Using PHP scripting language we developed our application where we can read, write, edit, delete and update

the files. PHP is compatible with all the operating systems like windows, Linux, Mac, etc. It is compatible with servers like apache IIS and others too. It supports various databases also.

Our applications contain various pages which will be accessed by the admin and the students. Where we can store our data like our study material online itself. It will also support to store images like media files online. We will have discussion room where students will be able to discuss about the project. Admin will take care of the accounts and will manage the data updated by the user. So, in order to develop this application we used PHP open source programming language and the HEIDI SQL for developing a database. It supports our project to store the data, view records and modify the data.

2.2 Project Application Information Flow

The data flow of our Digitized engineering Notebook project is illustrated by the use case diagram. Where admin and user has various tasks to perform. Admin will take care of all the activities of students. Whereas, team members will be able to login, insert the data, view and discuss among the team members.

2.3 Interaction with other Projects

We don't have any interaction with any other projects as of now.

2.4 Interaction with Other Applications

We don't have any interaction with any other projects as of now.

2.5 Capabilities

- ❖ It depends upon the count and number of people using it.
- ❖ We will be able to create the online book for members who can store the data and view.
- ❖ Any activity can be blocked by the admin.
- ❖ Admin will be able to schedule an event for any activity.

❖ There is an internal chat room for the members to discuss.

❖ Upload documents, images can be done.

2.6 Risk Assessment and Management
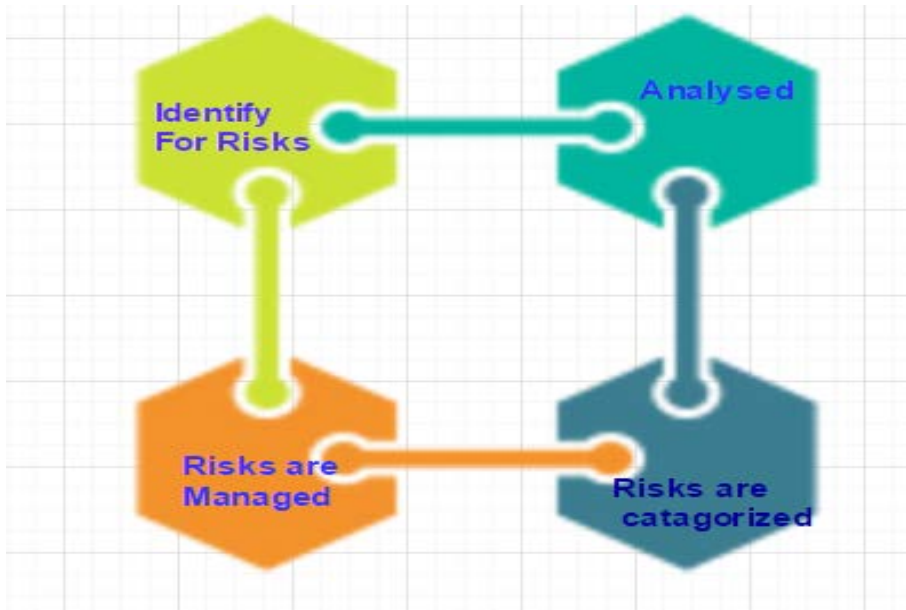
Risk Management

➢ Risks have to be predicted or assessed and managed by the team. We have taken a few measures to manage our application to run smoothly.

➢ We must have our project plan, estimate the cost, divide the work among the team, check for the requirements, Design to be done, every phase must be done according to the deadlines.

➢ We will be able to manage the application by various team members involved in the project.

➢ If in case of any risks are assessed then it will be raised and undergo the process.

➢ We will be having high security to our application so that it doesn't get affected by the breaches, virus, or any hacking.

➢ Process will be followed and high security is maintained for our application.

3. Project Requirements

3. 1 Identification Of Requirements

To develop Digitized engineering notebook application we used certain softwares and hardwares as follows.

Programming Language

➢ PHP (Server side technology),
➢ HTML,
➢ CSS,
➢ JavaScript (Client Side technologies).

Database:
➢ MySQL Database.

Server
➢ Apache Server.

Hardware requirement

➢ RAM Minimum – 512MB
➢ Hard Disk Minimum – 80 GB
➢ Processor – Core 2 duel
➢ Accessories – Keyboard, Mouse, Monitor (If you are using desktop)

3.2 Operation, Administration, Maintenance, and Provisioning (OAMP)

We will be Monitoring the application 24/7. We will have a backup of all the data related to the customer and maintain it appropriately. If any kind of issue arises then we have our team to work on it.

## 3.3 Security and Fraud Prevention

Admin and User have their own login credentials to access the Digitized Engineering Notebook to avoid fraud access, we maintain our data securely. Admin will have all the rights to access the database can make necessary changes when required. Every session activity will be tracked and monitored.

3.4 Release and Transition Plan

We will be releasing our application once it is developed with all the features. Then we deploy that into the server. So, that it will be accessible to the users to access the data they want. We can make future enhancements to this and can replace with this existing one to the server.

4. Project Design Description

Our digitized engineering notebook application is developed by using PHP software and database by using HIEDI SQL. We have followed the approach to develop our project. Our design team has designed the project which defines the data flow. Our development team will develop the project according to our design which was approved by the company. Here is the use case diagram which will define our project design.
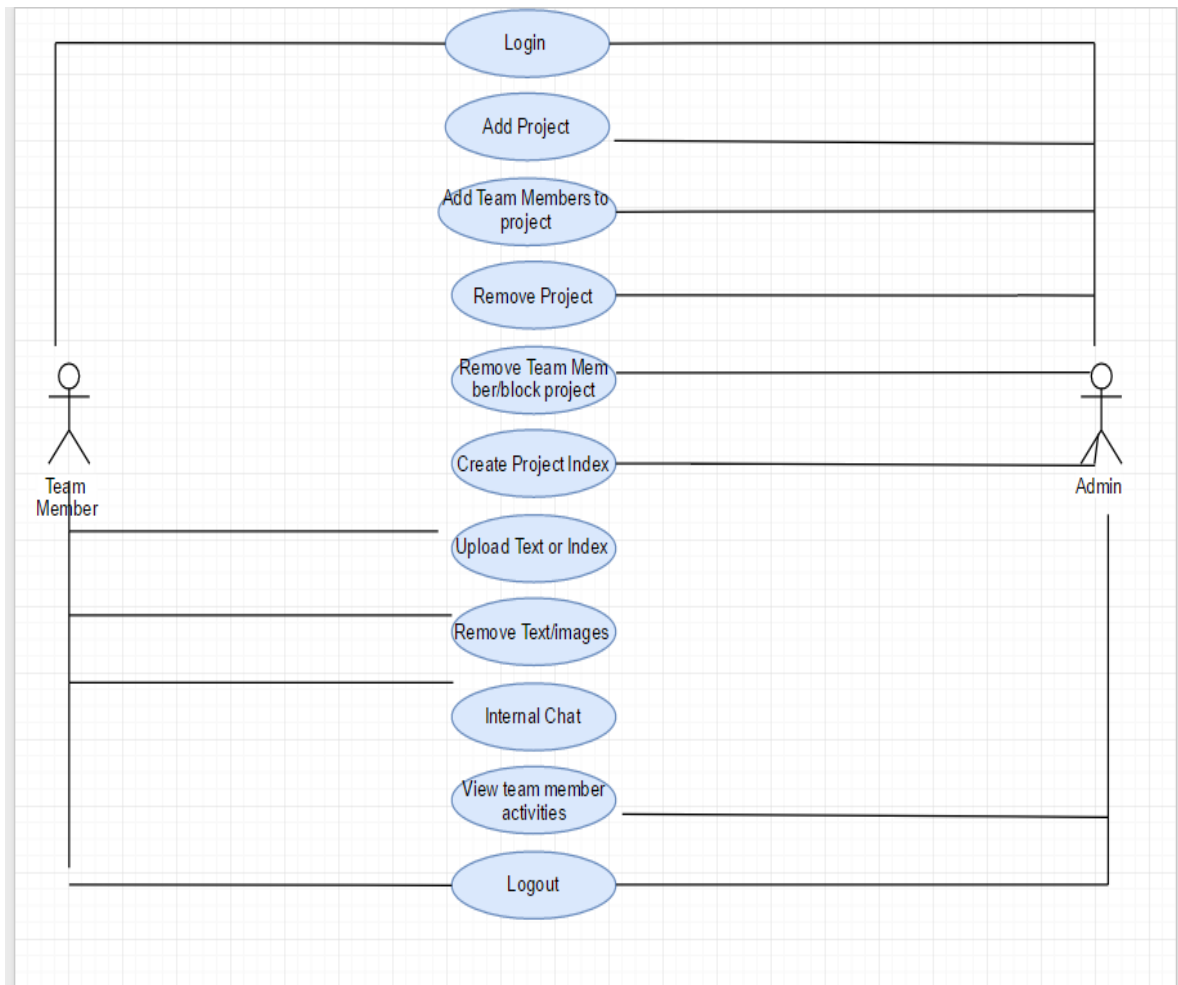

Use Case Diagram

This is the use case diagram which contains user and admin. User will perform few actions and rights. Admin is the main person who takes care of the users actions. User can create account upload images, notes, discuss with the team members and admin will be able to add students, add new projects, and view team member's activities.

5. Project Internal/external interface impacts and specifications

The internal and external interface is the project outline where we design the application according to the required specifications. We have two modules in it user and the admin. Each one will have different roles and activities to do.

Home Page
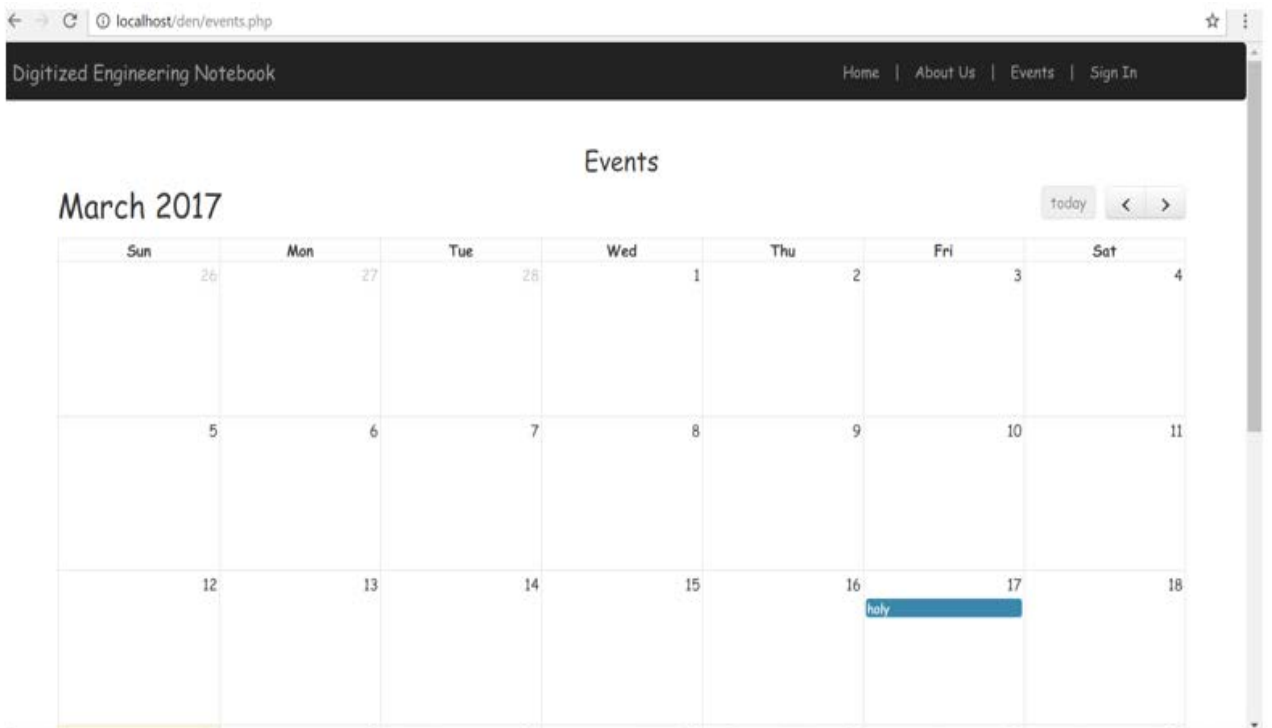
This is the home page of our application.
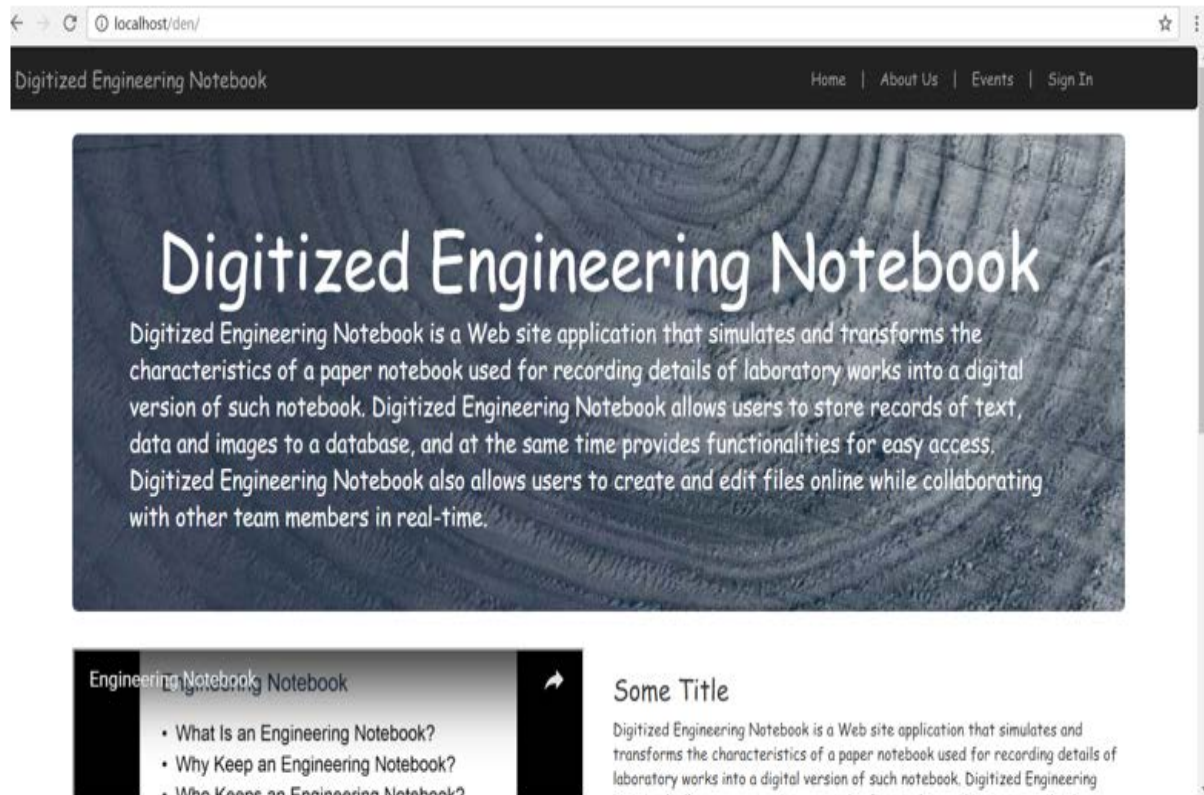
About Us

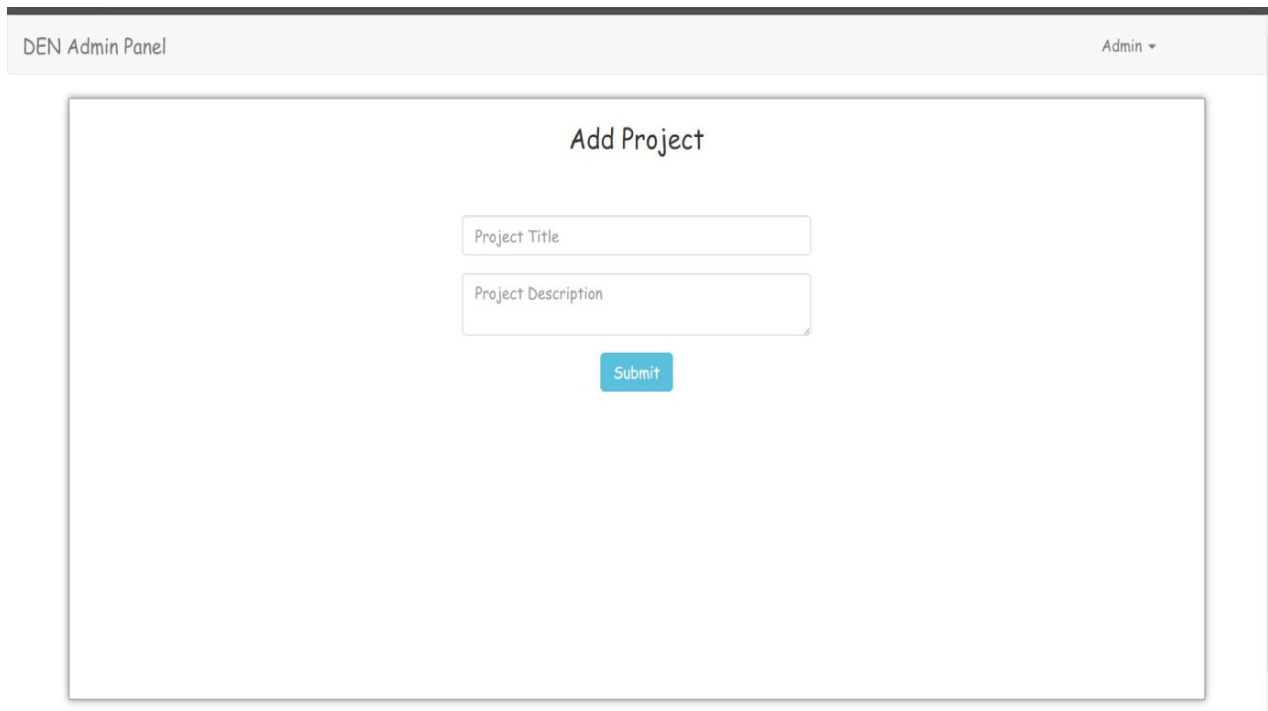This is the about us page where we will have brief introduction about this application
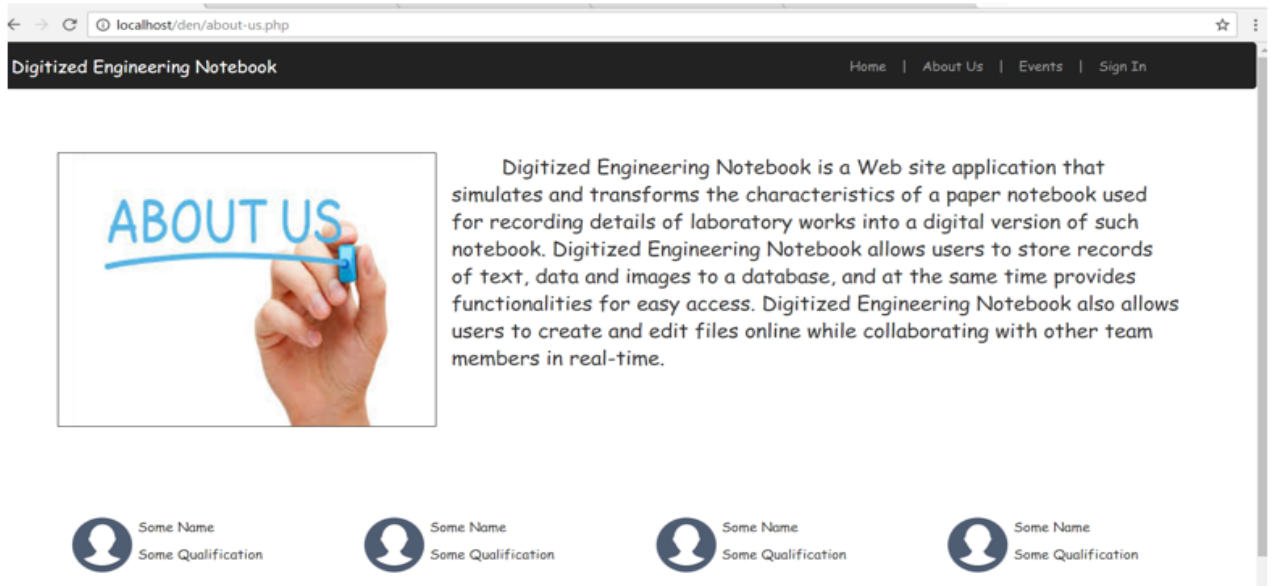
Events Page

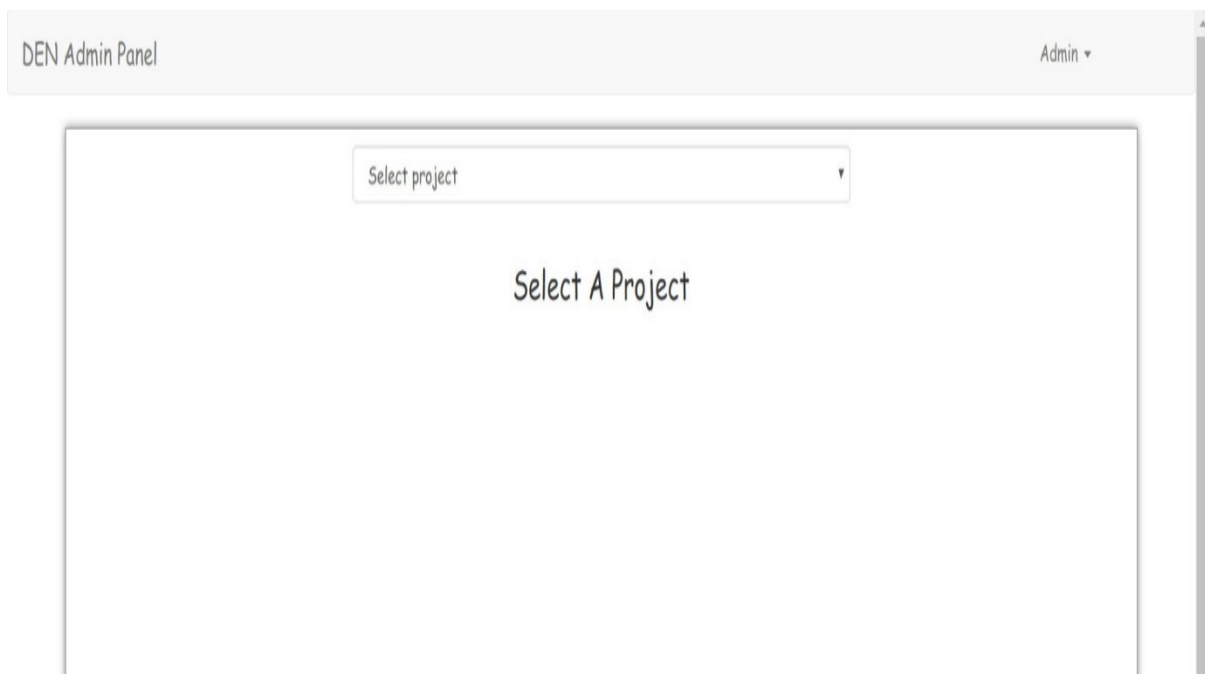Page to view the events on calendar.

Admin's Add Project

Here admin will be able to create new projects.

Admin's Project Page
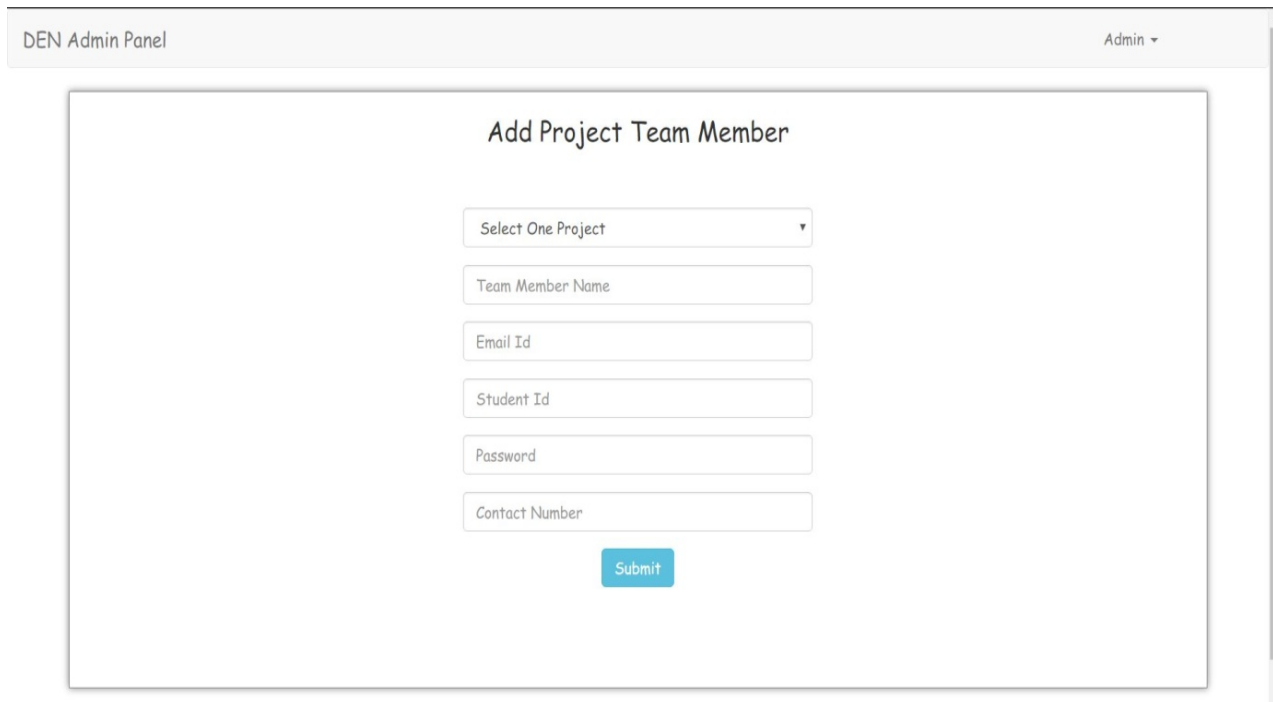
Here Admin can select project from the dropdown list

Admin's Add Project Team Member's Page

Admin can add team member to the project
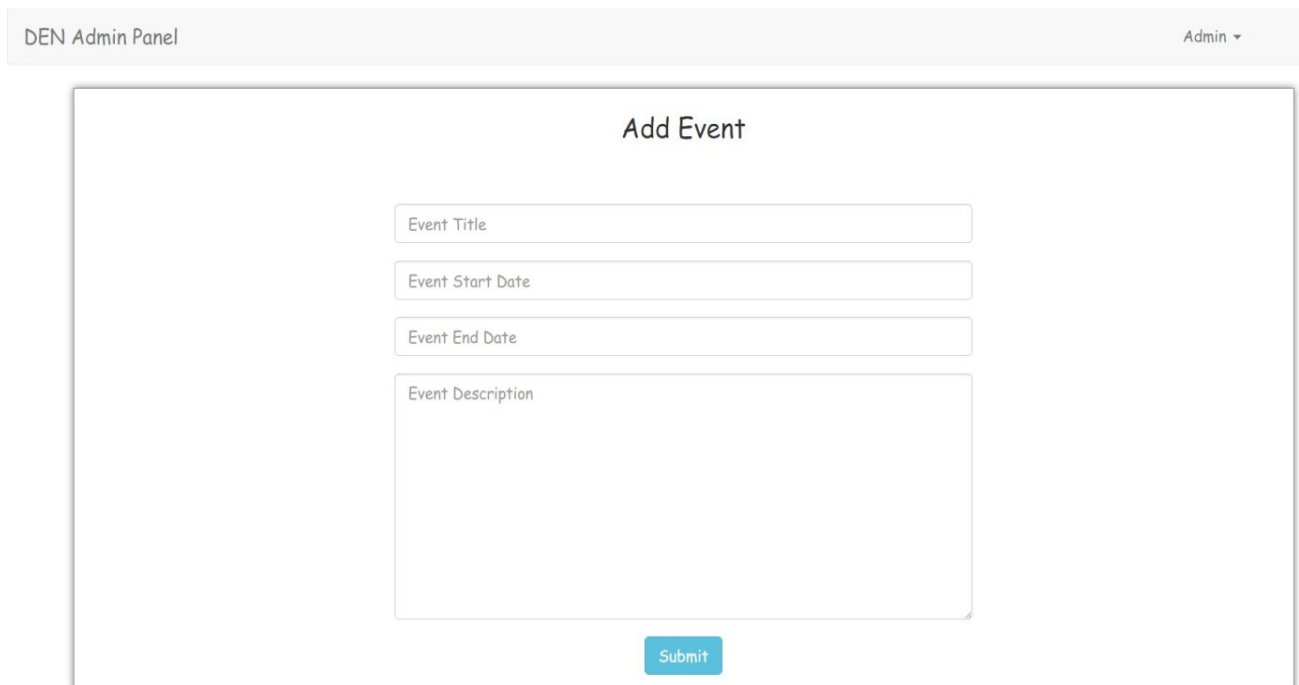
Admin's Add Event Page

Events will created by the admin

6. Functional Area / Design Unit Impacts

6.1 Functional Area A / Design Unit A

Every Design units of this project is having the functional area with similar Impacts. The Data base functionalities follow the same impacts of the design units and it also supports the main programming of our project.

6.1.1 Functional Overview

The main stream of our web application is that, the No of projects and data that is uploaded by either from Admin or User in to our application is stored in the database. The Admin module has the functionality to create a project and assign team members to their corresponding projects and admin can create events conducted and he can observe the team member's activities on the board. The access pages for Admin and User have their own credentials to login into the project. By the brief observation of the above-mentioned information, we can say that the admin and user design have impacts on their functionality on which they are using.

6.1.2 Impacts

The major functionality of our Digitized Engineering Notebook is, Admin module contains functionality to create a project, add a member to project, to give default login credentials to the user, to create an event and admin also got authorities to view team activities. We're as the User module have the functionality to upload the data to their corresponding project, to change the default login credentials created by Admin, User have an additional functionality to discuss the project with the team members in discussion board.

6.1.3 Requirements

a) **XAMP Control Panel V 3.2.2**

Here we are using the XAMP CONTROL PANEL V 3.2.2 to connect to the Web server and to the SQL database created. This tool acts as Apache Server Bridge between the Web server, Admin, User and Database.
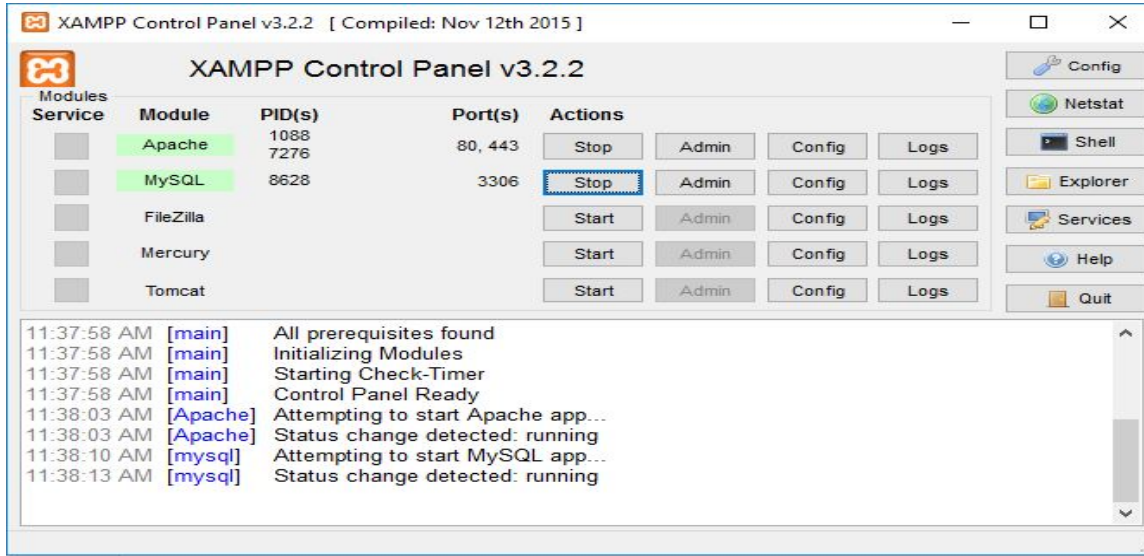
b) **Login credentials**

In our project, Admin and User have their own login credentials, Admin has default User name ADMIN and Password Admin were the Default team member login credentials assigned by admin
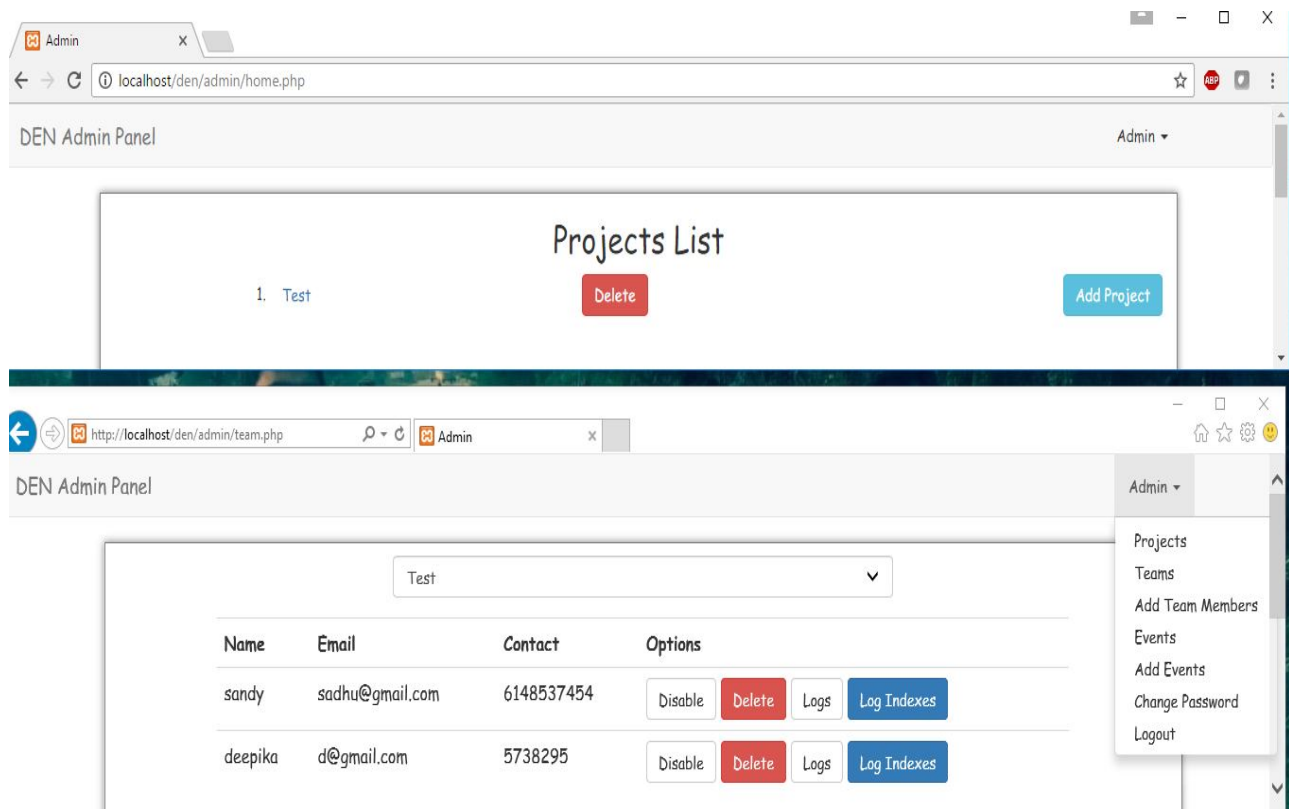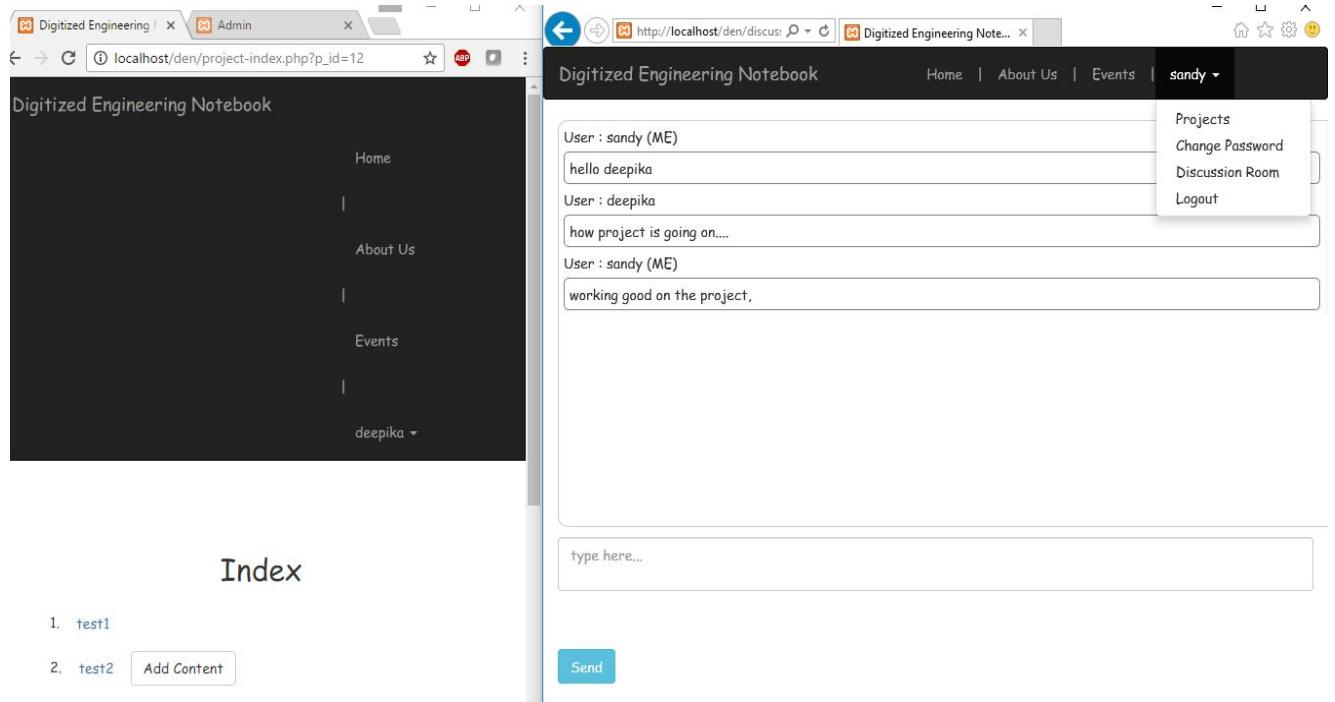
c) Admin Requirements

Admin must be able to create a new project, add team members to their corresponding project, should be able to update the events conducted. Admin should also be able to Delete the Project, Delete team members, Disable the project member to login and he should be able to know the Project team activities.

d) User Requirements

In our application, User is defined as Team members in the project, were team member should be able to add the content into the project, he should be able to view the Events updated by Admin and User can change the Default password assigned by Admin. There is a Discussion room to share the updates or any query about the project within their respective team members.

E) Interface Requirements

Team member should be able to upload the content to the project and should be able to view the events created by the Admin. User should also be able to change his default password assigned by Admin.

F) Synthesis requirement

The data given by both Admin and Team members should be integrated and deployed in the database created.

G) Interpretation and Quality performance

Database should perform high speed data storage and data recovery. Admin acts as the parent of the project were team members act as the Children of the parent (Admin). Were the whole maintenance of our application is handled or organized by Admin.

6.2 Functional Area B / Design Area B

6.2.1 Functional Overview

The Database we created should be able to handle and store all the credentials required to maintain our application and to store the data given by admin and team members. We used HEIDI SQL to develop our Database schema.

6.2.2 Impacts,

We don't have any special impacts while developing the database of the project, as we know that the entire information updated by Admin or the Team member is stored in the Data base we created.

6.2.3 Database Requirements

To develop a good database schema, we need create data tables according to the requirements of our project. Here we created all the following database tables to develop database storage required to maintain our Digitized Engineering notebook. Following are the Database tables created in HEIDI SQL,

a) Admin
b) Projects
c) Project index
d) Project_team_members
e) Events
f) Discussion_room
g) Media_table
h) Media_type
i) User_status

7. Open Issues

We don't have any open issues at present.

8. Acknowledgments

We would like to sincerely thank to our project guide **Mr. Alex Liu,** who has guided and supported throughout our project Digitized Engineering Notebook. And we would like to say thanks to all of our professors for their support throughout the project.

9.References

HTML. (n.d.). Retrieved April 27, 2017, from https://www.w3schools.com/

T. (n.d.). PHP Tutorial. Retrieved April 27, 2017, from https://www.tutorialspoint.com/php/

(n.d.). Retrieved April 27, 2017, from https://www.w3schools.com/sql/DEfaULT.asP

10. Appendices

Here we use the following resource Xampp, Bootstrap, PHP, JQuery, Apache server, SQL, HTML.

XAMPP – Cross Platform (x), Apache (A), MySQL (M), PHP (P) and Perl (P)

PHP – Hypertext Preprocessor

JQuery – Web Developer

Bootstrap – Web Design

Apache Server – Web server Software

SQL – Structured Query Language

HTML – Hypertext Transfer Protocol