

Web-Based Undergraduate Student's Academic Curriculum Project Management

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ABSTRACT- Every institution's academic curriculum consists of minor and major projects where individuals join as a group and work on various projects. Each group tend to use excessive paper until the final submission of their project in each step involved while working on it, at the end, a pile of papers from various departments will be either trashed or reused, which will be trashed again at the near future except the main documentation of the project. What if the paper consumption can be avoided? A project guide and the overall project manager will have to consistently monitor the students under him/her and verify them timely based on the progress. What if this can be at the fingertips? What if this can be done with just signing in to a website? What if custom mails can be sent to the registered mail ID does? This website enables the students to submit their titles and reports just by signing into a portal, enter the team details and their respective guide details, keep updating the progress on the portal, so that the guide and the project head/admin knows every single detail "on time". This web application enables the admin to track the timely progress of projects through the dynamic pictorial representations like pie charts and bar graphs.

Keywords- *Projects, Curriculum, Reports, Progress, Monitor, Track, Pie Charts, Bar Graphs, Dynamic Pictorial Representation.*

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I. INTRODUCTION

Student Project Management System is a website which is an effective solution to the conventional process followed by a department in an institution in tracking and completing the process of academic curriculum minor and major projects. This website is not just a way to ease the process involved but also a way to use the time of every individual involved, student as well as project guides and heads efficiently.

A user can effectively use the website by first creating an account for himself/herself. After registering successfully, a student can submit their group's data through their profile page within the specified fields, this data is stored in the database. On the portal, various options are displayed to submit their necessary reports for verification through the file upload option.

A project guide, once after registering, can login into their portal to check the submissions made by students. These submissions can be downloaded through the portal which helps in going through the report submitted by the students, post verification of the report, a project guide updates the verification progress by

using the accepted/rejected buttons provided on the portal. Admin, once after logging in, can view the status of every student's submission through his/her profile page. Also, in the admin's portal page, the admin has multiple options to choose from in order to track the progress of every report submission made by the students in the form of pictorial representations like pie chart and bar chart. The admin can also send custom mails to the students through the portal whenever necessary.

II. BACKGROUND

In this section, a brief information about the conventional process/existing system and the proposed system will be disclosed. The conventional involves the manual submissions where a lot of paper is used, even though utilization of ample time is necessary, a lot of time is compromised during the process.

To avoid this and to effectively utilize the time during the peak periods, Student Project Management System helps in going through the necessary process digitally. This is done through a website. The basic protocol which enables the communication is HTTP protocol. A user interacts with the interface to perform various actions through the website.

In order to fully use the functionalities of this website, the user must first register under the specific category (student/guide/admin). Registration helps the user to utilize the fully functional website according to the user role. A student who enters/submits data is stored in a database, this communication and connection with a database is made possible using a local server called XAMPP. Apart from submitting data, students also upload files, this introduces to the use of another protocol called FTP (File Transfer Protocol).

FTP (File Transfer Protocol):

FTP, or File Transfer Protocol, is a method used to transfer files between remote computers through the internet or a web server. This protocol relies on the Transmission Control Protocol/Internet Protocol (TCP/IP) to transfer files efficiently and quickly, making it ideal for transferring large data files.

The data submitted to the website is stored in a database and can be accessed by both the guide and admin. The guide verifies the data before it is made available. Additionally, the admin can monitor project progress through visual representations such as pie charts and bar graphs. Another significant feature of the website is the ability for the admin to send custom emails to students using the Simple Mail Transfer Protocol (SMTP).

SMTP (Simple Mail Transfer Protocol):

The simple way to put things is, SMTP is a protocol used to send emails. Once an SMTP server is established, email clients can connect to the server and send messages through it. When the user clicks "send" on an email message, the email client opens a SMTP connection to the server using TCP/IP in order the send to be successful. Then, SMTP client uses commands to tell the server what to and what not to do, such as sender's email address, recipient's email address, subject, body/message.

Next, the Mail Transfer Agent (MTA) checks if the recipient's email address is within the same domain as the sender's. If it is, the email is sent immediately. If not, the server uses the Domain Name System (DNS) to identify the recipient's domain before sending the email.

III. LITERATURE SURVEY

A wide range of web, as well as mobile applications, enable users to perform various actions through their interface. The actual communication happens behind the scenes, a safe, secure and quick communication is made possible regardless of design and structure.

The SMTP protocol was introduced by Jon Postel, the "god of the internet" then. In 1981, he published RFC 788 with the title "Simple Mail Transfer Protocol". RFC 733 was developed to standardize electronic mail using FTP mail servers in 1997. RFC 772 in 1980 proposed the Mail Transfer Protocol as a replacement for the use of FTP for the mail. Extended Simple Mail Transfer Protocol (ESMTP) in 1995; this protocol started out purely ASCII-text based. In 2012, the SMTPUTF8 extension was created to support UTF-8. SMTP uses a set of commands that power the transmission of email messages between servers; the basic commands are HELO/EHLO, MAIL FROM, RCPT TO, DATA, QUIT, RSET.

In 1971, the original specification for the File Transfer Protocol was written by Abhay Bhushan and published as RFC 114. Until 1980, FTP ran on the predecessor of TCP/IP which is NCP, it was later replaced by TCP/IP version RFC 765 in 1980. RFC 959 is the current specification. Several proposed standards have taken place to make minor changes to the existing version in order to make it more accurate and reflect to changing

circumstances, RFD 1579 enables Firewall friendly FTP, RFC 2228 proposes security extensions, RFC 2428 adds support for IPv6.

When FTP connection is established, two types of communication channels: 1) Command channel. 2) Data channel are established. The command channel is useful in transferring commands and responses between the server and client, whereas the data channel to transfer the data. FTP transfers files using any of the following three transmission modes: 1) Stream mode. 2) Block mode. 3) Compressed mode.

Google charts:

Google charts provide a perfect and an easy way to visualize data on a website, either simple or complex, Google's chart gallery provides a large number of ready to use charts. The most common way to use Google Charts is with simple JavaScript that should be embedded in a web page by loading some Google Chart libraries.

IV. EXPERIMENTAL

A. Experimental Environment

Windows 10 operating system as a test platform,

- CPU is Intel Core I7 6500u, which has dual cores running on 2.4GHZ.
- RAM 16GB.
- GPU is Nvidia GTX 970, CUDA Cores 1664, 4GB GDDR5

B. Methodology

Student:

In this website, an account is registered through student registration which allows the student to login. After logging in, a student now enters into a student portal. In this portal, a button named "Profile" at the top right corner will help the student to navigate to a new student profile page where necessary data can be submitted through the input fields, this data will be stored in the database

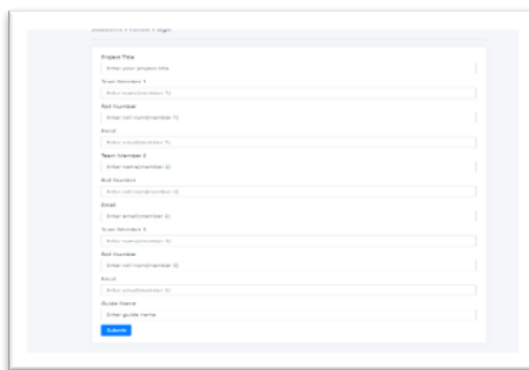
A screenshot of a web form titled "Student Details Submission Form". The form is organized into several sections, each with a heading and a "Add" button. The sections include: "Personal Info" (with fields for Name, Email, and Address), "Phone Number" (with fields for Phone Number and Address), "Next Information" (with fields for Name, Address, and Email), "Address" (with fields for Address and Email), "Phone Number" (with fields for Phone Number and Address), "Address" (with fields for Address and Email), "Phone Number" (with fields for Phone Number and Address), "Address" (with fields for Address and Email), "Phone Number" (with fields for Phone Number and Address), "Address" (with fields for Address and Email), and "Phone Number" (with fields for Phone Number and Address). At the bottom of the form, there is a blue "Submit" button.

Fig 1.1: Student details submission form.

After the above step is successfully completed, the students can now submit their respective reports by selecting the respective container elements displayed on the interface, then the students will be navigated to a new submission page where files can be uploaded along with the other necessary input fields being filled.

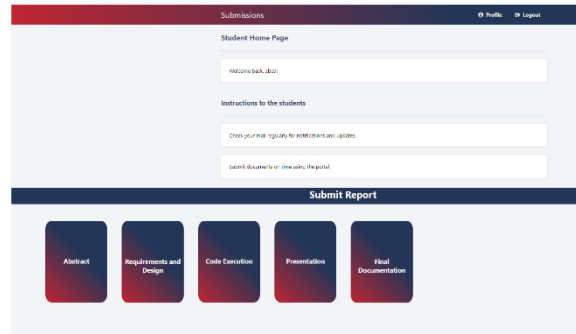


Fig 1.2: Student Home page/portal.

Project Guide:

A guide can login through their registered account, once logged in, the user is navigated to a guide portal page. In the portal page, the guide can find various container elements, by selecting a particular container element, the user will be navigated to the respective report submissions made by the students, this page enables the guide to download the reports submitted by the students for further verification which is acceptance/rejection.

ID	Title	Name1	Roll Num	File
1	ip spoofing	minimalism-naruto-shippuuden-anime-red-eyes-wallpaper-preview.jpg	20230313205813_minimalism-naruto-shippuuden-anime-red-eyes-wallpaper-preview.jpg	Download
2	ml algo	itachi_uchiha.jpg	20230313213900_itachi_uchiha.jpg	Download
3	spms	SPMS PPT.pptx	20230313214008_SPMS PPT.pptx	Download
4	binocular	WIN_20220204_01_45_42_Pro.jpg	20230313214113_WIN_20220204_01_45_42_Pro.jpg	Download
5	decoder	WIN_20220204_01_45_42_Pro_2.jpg	20230313214202_WIN_20220204_01_45_42_Pro.jpg	Download

Fig 2: Guide portal for file download

Admin:

In the admin's portal there is also another container element which allows the admin to navigate to a new page where the admin can send custom mails.

Send Mail

Name
IMPORTANT

email
anirudh@gmail.com

Subject
abstract deadline

Message
The deadline for the abstract presentation is in 21 feb. submit by within deadlines

Send

Fig 3: Form to send custom mails.

C. Experiment's Evaluation Factors:

The website is evaluated in accordance with the proposed model and testing according to the following factors:

- User Experience
- Ease of use
- Performance
- Accuracy
- Execution time

V. EXPERIMENTAL RESULT & DISCUSSION

Project Guide:

Radio buttons are made available to the project guides to take a necessary action after a report is verified which is either “accepted” or “rejected”. Once the downloaded file is verified and a necessary action has been taken, the guide can now move to his/her profile page by clicking a “Profile” button present at the top right corner. In this page, the status of every project is displayed.

#	Title	Name1	Roll Num	Name2	Roll Num	Name3	Roll Num	Guide	Status
2	traffic signal violation and recognition	M.Bhaskar	194161233	P.Ashwin	194161241	V.Veerabhadra	194161252	MD.Rajasekhar	<input type="radio"/> Accepted <input type="radio"/> Rejected Submit
3	SPMS	B.Arunachal	194161249	Ch. Akshay Kumar	194161234	Bimal Saggai	194161248	G.Sankar Reddy	<input type="radio"/> Accepted <input type="radio"/> Rejected Submit
4	Quantum computing	Jeevanth	194161231	Balaji	194161232	Ashwatha	194161233	Arunal Babu	<input type="radio"/> Accepted <input type="radio"/> Rejected Submit
5	proboscis	Nikhil kumar	194161240	subhik	194161235	Arunachal	194161239	Sriram	<input type="radio"/> Accepted <input type="radio"/> Rejected Submit
6	Abstractive speech analysis	M.Vikas	194161244	MD.Srija	194161235	S.Saraventh	194161240	Sarthak	<input type="radio"/> Accepted <input type="radio"/> Rejected Submit

Fig 4: Guide profile for approval or denial of respective project submission.

Admin:

The admin once logged in, just as the other users can view his/her profile page. Admin’s profile page displays the status of every project.

Admin Verification									
#	Title	Name1	Roll Num	Name2	Roll Num	Name3	Roll Num	Guide	Status
2	traffic signal violation and recognition	M.Bhaskar	194161233	P.Ashwin	194161244	V.Veerabhadra	194161252	MD.Rajasekhar	accepted
3	SPMS	B.Arunachal	194161249	Ch. Akshay Kumar	194161234	Bimal Saggai	194161248	G.Sankar Reddy	accepted
4	Quantum computing	Jeevanth	194161231	Balaji	194161232	Ashwatha	194161233	Arunal Babu	rejected
5	proboscis	Nikhil kumar	194161240	subhik	194161235	Arunachal	194161239	Sriram	rejected
6	Abstractive speech analysis	M.Vikas	194161244	MD.Srija	194161235	S.Saraventh	194161240	Sarthak	accepted

Fig 5.1: Admin profile page displaying status of every project submission.

The custom mails which can be sent by the admin will be delivered to the students.

SPMS Mailer

The custom mail has been sent.

Fig 5.2: Custom mail success.

When the submissions are made by the students, every respective submission of a report is stored in the database, this data from the database is used to generate the number of submissions from each section of the department is displayed in the form of pictorial representation like pie chart and bar chart.

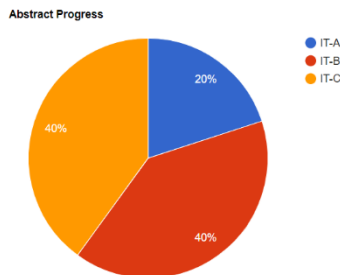


Fig 5.3: Pie chart representation of student submissions.

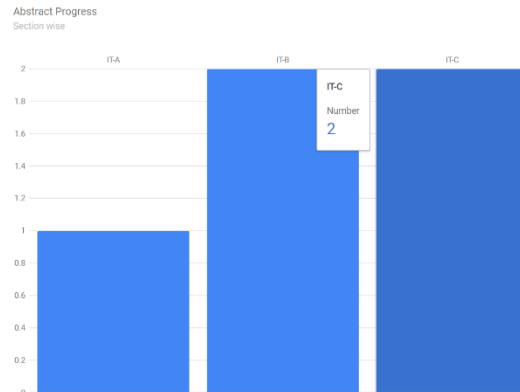


Fig 5.4: Bar Graph representation of student submissions

VI. CONCLUSION AND FUTURE WORK

Student Project Management System is a go to comfortable solution for the conventional/manual process of academic curriculum minor and major projects. The portal allows the students, guides and the admin to track the progress of student's work within the platform, it allows the students to submit their work and delivers the students work which can be verified remotely. This portal allows the students and the faculty to submit and verify their respective work in a simple and easy way through the internet. This project ensures effective time utilization of all the individuals involved in the process without involving any manual conventional work. It is a real time usage application when developed at a large scale has the potential of turning things around and ease the process. It demonstrates the power of easy access to student's work, read and verify it remotely. Though the currently developed skill enables the individuals involved to utilize the time and the application effectively, the project still has the scope to be further developed with multiple features making the process involved much easier and efficient. As the conventional process seeks enormous amount of time for submissions, this project has the ability to reduce the consumption of time and use it for other necessities effectively. This application with more additional features will helps all the individuals involved in effective utilization of their own valuable time during the peak periods. Just as any other service out there, this project has a drawback too, considering this project being developed for the use of multiple institutions consisting multiple departments of various kinds. Developing an application to meet such requirements is complex and not much profit guaranteed when the market is considered.

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