

Project Management Web App

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Abstract: Usually, In Universities for every Department, a council aka Project Management Committee consisting of few faculty members and the Department Head is formed for supervising the Project Management System. This committee further disintegrates into Panels - Panel Head/Convenor and Panel Members depending on the number of project teams formed by students. Further, each panel will be assigned by a set of project teams for mentoring, monitoring and evaluating the projects carried out by teams. When students submit their project ideas the respective panels review the idea based on different parameters and if it is feasible, they approve it else they might request a modification or might reject the idea and this is considered as the initial phase in the Project Management System. Once the idea is approved faculty guides are assigned. Later, the project work is carried out phase wise for easy monitoring and evaluation. In the current manual system, the latency of communication between students and the authorities during the phase transition is high, maintaining records for every phase becomes cumbersome, no transparency of evaluation and ruling out redundant project work is hard.

So, we will be designing a system that is a Web-based application that can be accessed throughout the organization or a specified Group/Department. This system can be used to automate the workflow of the Project Management System where students can submit their project ideas, maintain an online project diary, submit their phase-wise completed project works, provide links of their publicized work, check their individual and team performance and view previous academic years project works to avoid redundant projects etc. by just using few clicks. Also easing the work for Authorities in maintaining records of the work carried out by students and their performance by having a fully managed cloud-based database. This system is integrated with email notifications at each phase for confirming successful transactions and not to lose track of any work that is committed to the website.

IndexTerms – Project Management, Automation, MongoDB, University Final Year Projects

I. INTRODUCTION

Projects are the major aspect of any professional degree since it bridges the gap between the theory we study from books and the real-world situations. Therefore, picking a good project idea from the desired field of interest and working on it becomes very important. Every year a fresh batch of students do projects- be it mini or major project, most of them just google “project ideas” in their field of interest and copy that, some just repeat the same projects done by their seniors but only some might come up with their own ideas and work on them. So, like this, there are not only a few project teams but several teams, project ideas, fields, and branches in a university. Managing all those projects at a time manually becomes a tedious job for the project head or the faculty who is assigned for it. Here, we have come up with a solution to automate this large process involving a lot of data with the help of a project management web app.

For Starters, the University can upload all the projects done till date for reference. The students can upload their project ideas and carry on with their own ideas after acceptance of it or view old project's synopsis already available on the website and see anything can be upgraded with that and like to develop any old project with improved features. Meanwhile, a particular project head of a department can manage all the projects of the current batch of students with details of guide assigned to a particular project and can easily automate the evaluation of the project.

Therefore, it is easy to find any project on the website and managing the projects of a particular batch becomes automated and less tedious. For starters let's see whatsoever work is done till now in this area, for which we will be reviewing a few research papers and few websites.

REVIEW OF LITERATURE

The software project is a tedious, amazingly human exhaustive efforts, with a central impact in various groups' work and results. The venture's prosperity depends vigorously on the ideal exchange of information between taking an interest parties, for example, the management group, division heads, designers, engineers, and clients. In the current circumstance, most software organizations work simultaneously on numerous activities, which implies that a powerful venture management strategy is needed for the assignment of assets and task arranging. Online task coordination, observing, and management system offer an answer for mechanizing project management functionalities, including data management, assets management, and group cooperation, which incorporates all aspects of the project management measure. The system incorporates highlights including evaluating genuine advancement, group coordination, refreshing email audits and short messages, worker login management, client portfolio management, online installment solicitations, just as giving management reports that add to fruitful dynamic. [1]

Further reviewing the paper [2], we found that author presents a definite audit of many mechanized evaluating frameworks and procedures. Specific consideration was paid to the issue of how criticism is produced, to what exactly limit the measure is robotized, and the number of educators meddle required. A portion of the frameworks were semi-robotized, supporting just robotized evaluating or testing. Others are restricted to an explicit working framework or not fitting for global courses where there could be no legitimate confinement. From the paper we finish up there are impediments that are showing a solid requirement for fostering another strategy that fills the holes.

The paper [3] begins by talking about how final year project is being assessed and what are the constraints of present assessment system. As the creators push forward, they depict the difficulties and steps during the time spent assessment of project. Continuing forward to the scientific categorization of project management system the utilization of this application lessens the additional time and endeavors needed to oversee and screen the final year projects in universities. The creators: are utilizing a HashMap highlight of java to consequently allocate the advisers for the gatherings of understudies and various periods of WBS (work breakdown structure) for evaluating of the specific gathering. It additionally gives a decent interface which is straightforward by the clients and helps in adjusting to the utilization of this web application.

Many web advancement organizations are utilizing different task management systems today to work on the efficiency of an item. The same goes for students in college or in the university. The paper [4] presents the plan and execution of an arrangement of programmed assessment of programming tasks at an undergrad level. Assessment is done fundamentally from two points of view – copyright infringement identification and program testing. Proposed calculation for copyright infringement location recognizes every one of the most well-known types of counterfeiting done by understudies. Program testing is performed by oppressing the submitted program through an arrangement of experiments which might be produced physically or consequently. Framework is made open through an online interface for all clients (educators and understudies) with a data set backend.

Project Manager [5] is an honor-winning programming organization that is changing how organizations complete work. Its cloud-based work the executives items empower top-notch coordinated effort for many clients all around the world, with devices for project arranging, work process the board, asset the board, and time following across the whole work lifecycle. Project Manager is basic enough for anybody to utilize, yet amazing enough for chiefs and pioneers to settle on information-driven choices and for organizations to oversee undertakings of all degrees of intricacy. Associations, for example, NASA, Avis and the University of Washington depend on our product to deal with their groups, their activities, and do astounding things together. Project Manager is settled in Austin, with workplaces in Auckland, Seattle, and other incredible urban areas across the globe.

Time Camp [6] is programmed time-following programming appropriate for specialists or little or medium-size organizations. The stage is intended to assist with administering time consequently or physically, gathering client time passages in timesheets, and creating reports and solicitations for the work done. Different highlights of the stage incorporate timesheet endorsements, invoicing and PC movement following. The instrument can likewise produce participation reports give point-by-point data about working hours dependent on information from work area application. Moreover, Time Camp coordinates with an assortment of top programming arrangements just as venture the board applications Trello, Podio, Asana and Basecamp.

II. EXISTING SYSTEM

The existing arrangement of project management is manual. The project facilitator or guide gives tasks for students physically. Students complete the work which is given by the organizer or guide and submits it physically, in this framework all work is finished physically so it can require some investment to finish project-related work. Project organizer or guide requires recalling in mind when a student finished the work, so it is hard for Project facilitator or guide which student did the job furthermore, when. The current framework doesn't assist clients with getting the right data at the right time and clients can't oversee project advancement effectively to accomplish the principal objective.

Impediments of existing system

- It is tedious.
- Right data is not recovered at right time.
- Any updates to the information by colleagues or the Project organizer or guide is not in real time
- All work is done physically.

III. PROPOSED WORK

Project Management in Universities involves several processes and actors to handle those processes respectively before the closure any individual project. Processes include project idea submission, project idea approval/rejection, faculty guide allocation, regular monitoring and mentoring the project team, phase wise evaluation, final evaluation and end of project. Manually keeping a track of all these processes along with their status is a cumbersome work and maintaining physical records is not an easy job. That's where the proposed framework comes for the rescue. The proposed framework covers all the actors involved i.e. starting with Project Committee Head, Committee Members, Project Panels, Faculty Guides, and Students. Figure 1 shows the general structure of the whole management process of the proposed system.

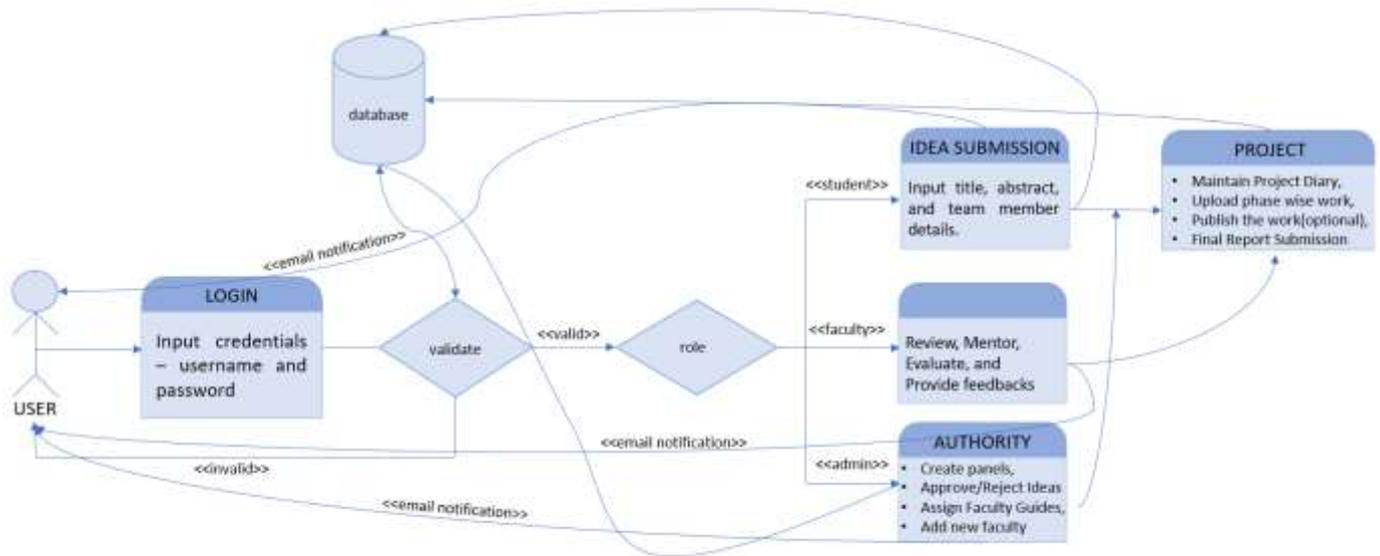


Figure 1. Flow diagram of proposed system

In this new portal,

- Project Committee Head is given the authority to assign the roles for faculties, create panels, approve or reject ideas submitted by students, allocate faculty guides to projects and add new faculty to the portal etc.
- Students have to submit their abstract of project idea either in text or document format, team members details in the submission form available in the portal where successful submission is confirmed by an email notification followed by approval phase and guide allocation; they have to make entry of their project status in the project diary section which brings in whole transparency of work between all the actors; they can find their individual performance and feedback which ultimately helps them to work on their lows.
- Faculty guides, monitor the works submitted by their teams, evaluate them on their performance, and give them proper feedback.

As the UI is made user-friendly all the above-mentioned steps are handled with simple clicks, also with the email notifications integrated with each step helps in not to leave any task go unnoticed and all the data is stored in a fully –managed cloud database, MongoDB – easy to scale, low latency, cost-efficient, secure, NoSQL database.

IV. IMPLEMENTATION DETAILS

- **TOOLS AND TECHNOLOGIES USED**

Front End: HTML, JS, CSS, and Bootstrap

The listed front end tools were used for designing and developing our portal

Framework: Flask web development

Frameworks helps in avoiding writing the low-level codes like protocols, thread management etc. and comes with a package of libraries. The Jinja template of FLASK helps us to maintain DRY (Don't Repeat Yourself) principle by making us code once and extend it wherever required.

Data Storage: MongoDB Atlas

The web application requires a secure, fully - managed, scalable database which is found in MongoDB Atlas. And we used AWS provisioned MongoDB for the storage purpose.

3rd Part Integration: ZingChart

We have enabled data visualization for Modern Technologies Vs Number of projects carried out in those domains per year. To achieve this, we have used API of Zing Chart.

- **WORKFLOW**

In the Unified Modeling Language, activity diagrams (flow chart) can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control. After registering the user can login to the portal using his/her credentials. Based on the role user will be redirected to respective actor portals. Every actor portal has dedicated features that can be accessed. Whenever user feels his/her purpose in visiting the website is served they can exit the portal by signing out.

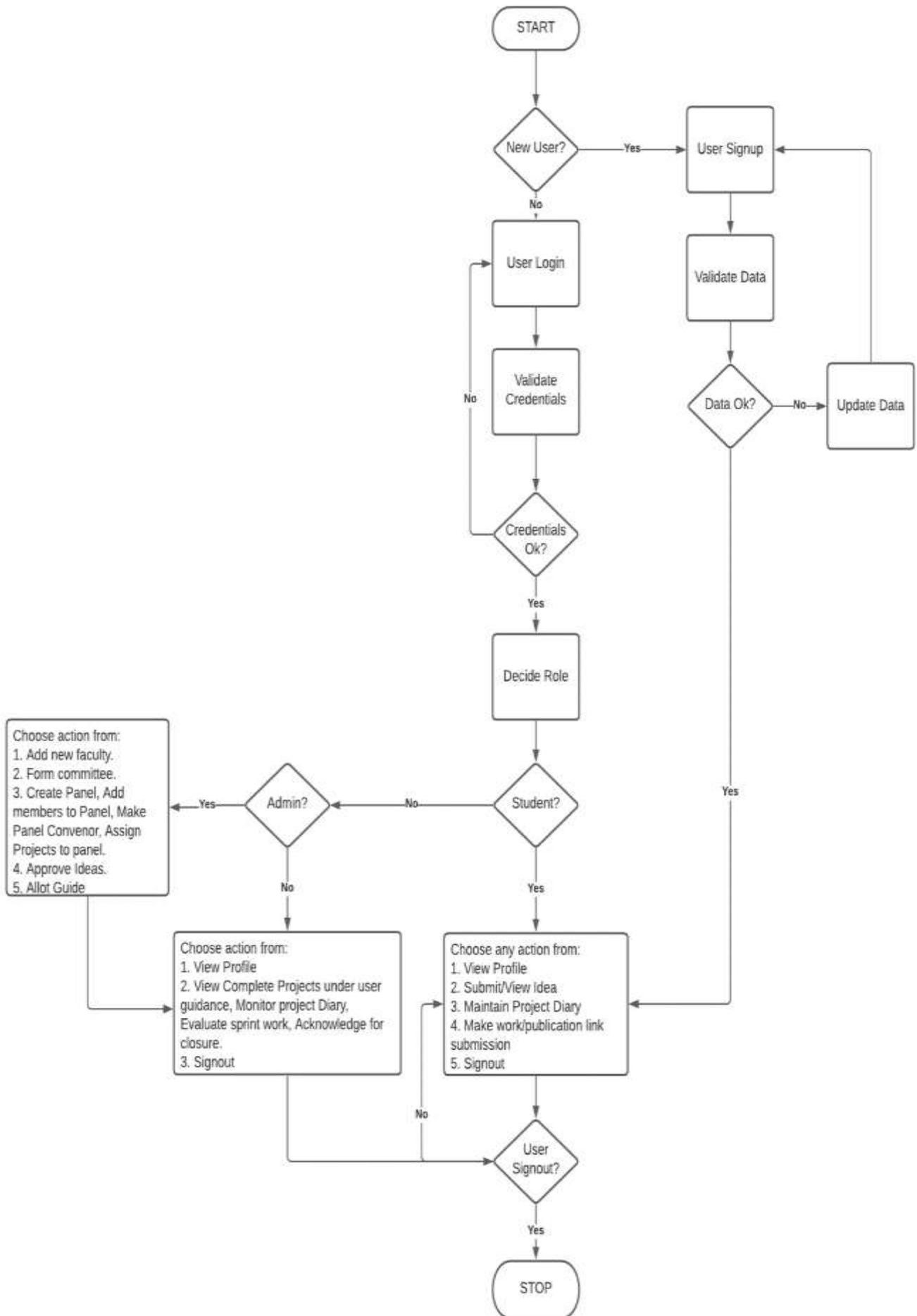


Figure 3: Workflow of the proposed System

V. RESULT

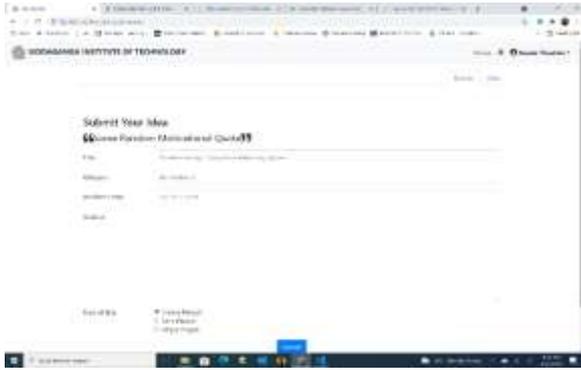


Figure 4. Student Idea Submission Page

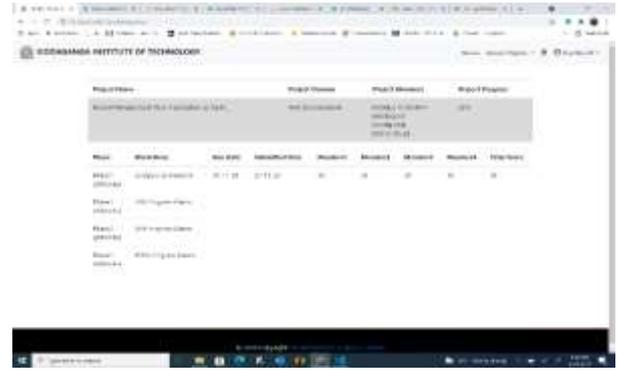


Figure 5. Faculty Guide Evaluating Performance of Students Page

As a part of the proposed system we are going to build a web application providing individual logins for all the actors. We are bringing down the tedious job of tracking and maintaining records of projects carried out by students for the Project Management Committee. Also avoiding redundant projects by having a mechanism synced while students submit their project ideas and cut down the waiting time between every process. Maintain transparency of performance and evaluation.

VI. FUTURE MODIFICATION

The current framework is created for a solitary department of the college for example "*Department of Computer Science and Engineering, Siddaganga Institute of Technology, Tumkur*". The further alteration of the venture is to make or expand the framework so that it tends to be utilized at different institute or association levels. It tends to be reached out to for greater security. Utilizing different degrees of confirmation and check greater security and protection issues can be kept up with by utilizing different perspectives.

VII. CONCLUSION

Project Management Web App is an exceptionally powerful application that can be used to great extent. Project Management Web App has numerous benefits over the conventional system. A portion of these benefits are brought together information, exceptional status revealing, E-mail warning, usability, reinforcements, and so forth the utilization of this application lessens the additional time and efforts needed to administer and screen the final year projects in colleges. It too gives a decent interface that is straightforward by the and helps in adjusting to the utilization of this web application.

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