

Comparative Study of Web-Based Software Project Management Tools

^IDr. Z.A. Usmani, ^{II}Anam Ansari, ^{III}Abdul Latif Fruitwala, ^{IV}Sajid Chudesarad
^{I,II,III,IV}Head of the Dept. in Computer Science Dept., ^{II,III,IV}Student of Computer Science
^{I,II,III,IV}M.H Saboo Siddik College of Engineering, Byculla, Mumbai, India.

Abstract

The aim of this paper is to describe web based software for Project Management. The software provides a role based access control system that helps in developing, organizing, and maintaining software projects in the Tata Institute of Fundamental Research. It provides an easy method to create projects, add administrators, engineers associated with it, commencement and end dates, adding tasks, preparing project reports, and all the things associated with the project. The software also helps to breakdown a project into multiple modules as and how required by the engineers. The simple Graphical User Interface makes the software easy to use and understand.

Keywords

Project management tool, role based access, graphical user interface.

I. Introduction

Maintaining a project database, planning its creation, its execution controlling and risk management plays a crucial role in Project Management. Also a systematic and a devised way of handling such projects is mandatory, without which it becomes difficult to handle. Thus a software is necessary, which not only manages projects but also helps analyze it. Project management is like a series of actions added to a process of getting things done on a project by working with project team associates to reach project schedule, cost and technical performance objectives. Definitely we could say that project management is a carefully planned and organized effort to accomplish a specific one-time objective. This software also requires permissions from the hierarchy to create, control, and manage projects which makes it unique from the other softwares. The user interface is also simpler as compared to other softwares.

Technologies Used: The technologies used provide a way to determine how efficiently tool works. The technologies used are:

Web technologies:

- HTML: Hyper Text Mark-Up Language gives basic structure to any web page and it is used for creating and displaying a page. It supports images and other type of media. Links can also be added to the webpage. It can be used to make static and dynamic both type of websites.
- Java script: It is one of the three major technologies used in World Wide Web. It is supported by all the browsers
- CSS: Used for styling a web page written in any mark up language. It can be used for any type of xml, plain xml, SVG etc.

Other technologies:

- R-tool: software facilities for data manipulation, calculation and graphical display.

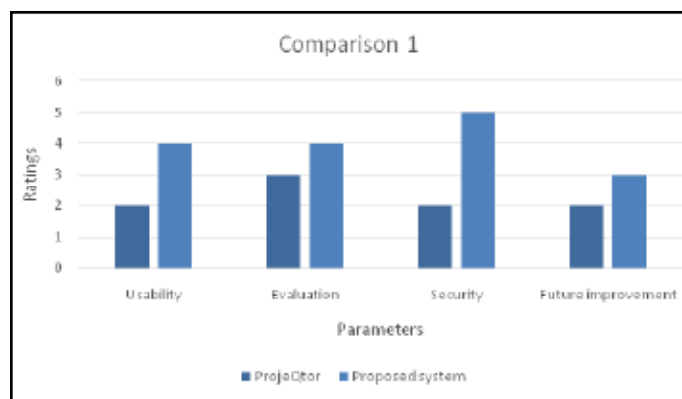
II. Comparative Study

Existing system which we are taking into consideration are PROJEQTOR, TRELLO, KICK OFF.

1. ProjeQtOr: ProjeQtOr is an open source project management tool

Its features are as follows:

- It might take time to get used to it as it is not user friendly.
- It can manage tasks and milestones.
- It can do work and team management.
- It can manage multiple projects.
- It is open source.
- Disadvantages
- User Interface is not friendly (Too congested).
- Graphical analysis for statistical data (Bar diagram, Gantt chart) is not available.
- ProjeQtOr tool makes even simple projects very complicated.
- Addition deletion and modification of the project details is not role based. (For e.g. Even a project team member can edit the details which hampers the integrity of the project data).



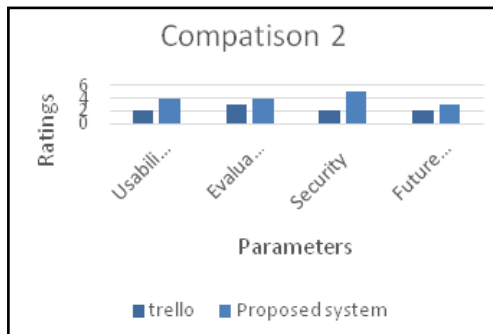
The above graph shows comparison between projeQtOr and proposed system on the basis of usability, evaluation, security and future improvements.

2. Trello

The features of the existing system named "Trello" are as follows:

- It is Open Source Software.
- Interface is easy to use.
- Real time updates are fast.
- Customize screening effect, one page access board.
- Assessment to team member is easy. Adding members is easy.
- Disadvantages:
- No Gantt charts schedules.

- Documents can not be written about the boards, only small descriptions can be added.
- No calendar.

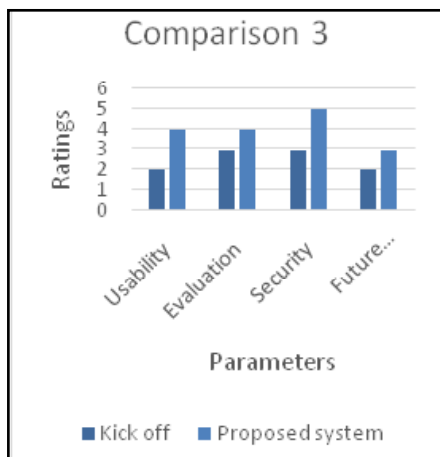


The above graph shows comparison between trello and proposed system on the basis of usability, evaluation, security and future improvements.

3. Kickoff

The features of project management software “kickoff” is as follows:

- The UI is neat and attractive.
- Provision of to-do, assigning to project member and setting end dates is good to use.
- The Files is like Dropbox , easy to share files according to projects.
- Efficient system flow
- Disadvantages:
- Platform dependent, only for MacOS.
- No Gantt chart facility.
- Sorting of to-dos and notes is difficult.



The above graph shows comparison between kick off and proposed system on the basis of usability, evaluation, security and future improvements.

III. Proposed system

Our proposed toolkit is simple, easy to understand and secure. As role based access has been provided based on the hierarchy, it adds to its security. We have following roles:

- Super Admin: He has the highest level of authority and access. He plays an essential role in project management.
- Admin: Projects are assigned to them by super admin.
- Project Engineer: They work on the project assigned to them by project admin.

Following are the list of tasks each can perform based on the position in the hierarchy:

Super Admin:

- He can create projects.
- He can add new projects
- He can assign admins to projects.
- He can also schedule the projects.

Admin

- He provides project details
- He decides commencement and end-dates
- He keeps check on Milestones.
- Assigns projects to project engineers.
- Submits projects to super admin.

Project Engineer

- He adds project tasks.
- Prepares project reports.
 - He gives documentation provision.
 - He submits project to admin.

Features of proposed system:

- It is open source.
- Simple and user friendly.
- Provides graphical representations (BAR graph, PIE charts).
- It has features like sticky notes and reminders.
- Efficient project and meeting scheduling.
- Proper milestone management using timeline charts.
- Flow-up feature is available.

IV. Future Scope

Currently we are using bootstrap for generating the project report and eventually we plan to use a dedicated tool for graphics which is R tool.

R is an integrated suite of software facilities for data manipulation, calculation and graphical display. It includes

- An effective data handling and storage facility,
- A suite of operators for calculations on arrays, in particular matrices,
- A large, coherent, integrated collection of intermediate tools for data analysis.
- Graphical facilities for data analysis and display either on-screen or on hardcopy.
- It is a well-developed, simple and effective programming language which includes conditionals, loops, user-defined recursive functions and input and output facilities[1] .

R can be extended (easily) via *packages*. R has its own LaTeX-like documentation format, which is used to supply comprehensive documentation, both on-line in a number of formats and in hardcopy.

Project progress and status can be easily monitored and displayed using this tool. Super Admin can view all the projects going on in his department. As he has the highest authority he can view everything. Below super admin there is admin he has the authority to view all the projects under his supervision. He can also make any changes; he is authorized to do so. The graphs will ease his task of monitoring. Project Engineer has his view restricted to only his project. This additional functionality can be added using R tool.

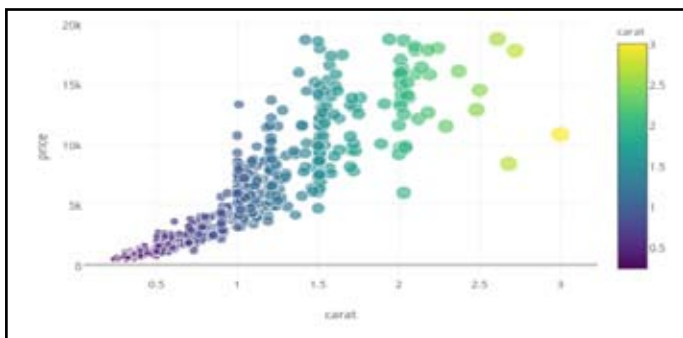


Fig 1 : Example of R tool [2].

V. Conclusions

The proposed system provides an optimum level of security by providing role based access and solves the problem of complexity faced by many users in other tools. It provides simple and clear user interface. Scope of future improvements also enhances the usability and functionality of the tool. Other features like sticky notes, deadline alerts add plus points to it.

VI. Acknowledgment

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Author's Profile



Anam Ansari, Computer Engineering Student in M.H. Saboo Siddik College of Engineering, Currently doing Final year project in Tata Institute of Fundamental Research.



Abdul Latif Fruitwala, Final year Computer Engineering Student in M.H. Saboo Siddik College of Engineering, Currently doing final year project in Tata Institute of Fundamental Research.



Sajid Chudesara, Final year Computer Engineering Student in M.H. Saboo Siddik College of Engineering, Currently doing final year project in Tata Institute of Fundamental Research.