

Improving The Basic Kanban Tool

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ABSTRACT

Within a rapidly evolving environment of project management tools, kanban boards have emerged as a key tool for increasing organizational efficiency and task transparency. However, we believe traditional kanban board designs frequently fall short of meeting the flexibility and customization needs of varied teams and projects. In this term project for CS 3704 at Virginia Tech, our team, Kanban Pioneers, seeks to create an improved tool to allow software engineering teams who use kanban boards to organize their work more productively as well as allow for increased customizability. The problem we want to address is the lack of useful productivity tools currently offered by companies who design kanban boards for consumers. Most kanban tools offer considerably basic functionality for their boards and lack customizability. We identify the fact that projects vary largely in scope, size, and complexity, necessitating the need for a tool that is both highly customizable and scalable to accommodate the unique needs of each project. Our product will integrate adjustable columns, a shared to-do list feature, dynamic task highlighting, and an effortless way to organize tasks by priority. Through a user-centered design, this project is constructed to accommodate swift changes, assure high performance, and preserve reliability. This results in a tailored project management solution that meets the various needs of today's teams. Moreover, our product is designed to integrate with agile methodologies that currently dominate the software engineering processes by allowing tasks to be organized into sprints or specific timeframes.

INTRODUCTION

After assessing current kanban tools such as *Jira* and *Microsoft Azure*, our team has identified several problems and areas for improvement. One problem in current kanban boards is that there is no function for every teammate to view their own tasks clearly. They can see all the tasks assigned to the team but are unable to see which tasks are assigned to themselves. We plan to design a new function called “My Tasks” which will allow users to view their assigned tasks directly from a side panel of the web page. A second problem is that current tools do not allow users to set a deadline or timeline for tasks. Having an option to set dates on tasks allows for several more features to be added to improve software development team organization. Such features that we wish to incorporate include: time boxes for every task, an interactive calendar, and timed-task notifications. Allowing the option for time boxes will allow the manager/project lead to set the expected time duration for the whole project and each task,

and teammates can organize their time better. For more usability, we will add a calendar function. There are two main improvements this will allow: a calendar view of a “to-do” list where all deadlines for tasks will be listed on the calendar, and a notification feature that will notify the user of start time and deadlines of tasks. Users can choose to use the original view or the calendar view as their preference and they will get a notification for starting day of project, meetings, and tasks. Users will also get notifications about the deadline as many times as they want. They can select how many days before deadlines they wish to receive a reminder, and how many reminders per day, week, or month.

At the core of our project, we plan to have a fully functional kanban board that encapsulates all of the good features of existing tools. The simplicity of the kanban tool is why so many software development teams choose to use it, and it is our goal to improve the tool rather than over-complicating it. We want to emphasize this by having the kanban board at the center of our web page, with all additional features within side panels to stress the fact that they are optional productivity tools. Our kanban board will also feature customizable columns to give teams the ability to modify titles to best accompany their work, as well as a feature to change the color of tasks that are blocked to draw attention to items that need to be resolved quickly.

RELATED WORK

Jira issue tracker: Jira is an issue tracking website by Atlassian that offers many features, one of which is a Kanban board. The main draw of Jira is easy integration with code repository sites such as Bitbucket, GitHub, and GitLab, as well as customizable automated actions linked events such as creating an issue.

Microsoft Azure: Microsoft offers a version of a kanban board in their Azure tool. They have many features other than kanban, including a product backlog, scrum sprints, retrospectives, dashboards with customizable widgets, and even code repositories. Azure offers a great variety of tools for managing software projects, but they can be difficult to navigate and the kanban board specifically is not very user-friendly.

MONDAY work management: A software to manage the work. The visual design is a prominent feature of <http://monday.com>. The designers of this tool use color to make it easier for users to use it. As a user, you can easily judge the status of tasks and projects through color and status. Also, users can easily add new

files, labels, link, and etc. By clicking on 'Add more columns', and those will be displayed in different colors as well.

SOFTWARE ENGINEERING PROCESS

For this project, our team plans to use an Agile framework with multiple sprints to complete work and keep track of deliverables that need to be turned in. This seems like a logical choice because there is a clear structure to the schedule/deadlines of the project assignments, it will allow us to keep track of everyone's progress, and we can easily identify any blockages that occur during our project. We plan to hold stand-up meetings at the beginning of each group session and track our work using a kanban board in GitLab.

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