Virtual Project Management Web App

Project Description
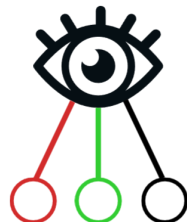
Washington State University

Engineering and Technology Management Department

Dr. James R. Holt

The Visualizers

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I.   Introduction

The Visualizers have been asked to create a project management application for our client, Dr. Holt. This application can be used as a tool by companies, managers, and individuals for tracking their progress on a particular project. The tool will help solve the problem of inefficiency in project management. The creation of such an application requires the implementation of a web application with a front-end web interface and a database in the backend which will be used to determine the progress of the user in the project. The core of the project is the re-creation of the graphical interface which provides a visual representation of the task and project status. The end goal of this project is to provide a new product with improvements to the current solution.

II.   Background and Related Work

Virtual Project Management is an application that Dr. Holt currently owns. The application serves the purpose of facilitating efficient time management during a project. It has three main features which aid it in fulfilling its purpose. It displays the status of a task based on the input by the user, tells which tasks need to be prioritized based on their life cycle, and aids in determining the right hierarchy of time allocation to follow based on the status of the task. The essence of this application is the graphical user interface which is the visual representation of the project life cycle.

Previously, Dr. Holt built a basic version of the application on a spreadsheet program for demonstrating his idea and once had a mobile application. Over the years, the software transitioned into a web application. The current version of the application is built using obsolete technology, and key security changes are being implemented under the supervision of Scott Mattes, an associate of Dr. Holt. The changes include transitioning from HTTP to the more secure HTTPS, improvements and changes to the graphical interface, and bug fixes. The client suggests that the team create the product in a way that it can be further used for the creation of a mobile application.

Throughout the project, the team is expected to acquire new skill sets such as gaining an understanding of a query language for the management of databases, learning tools similar to GraphJs for developing a graphical user interface, and improving knowledge of UX for a better user interface and user experience.

III.   Project Overview

Much of the work that people do today is centered around projects. Companies hire project managers to plan and manage projects, and they hire workers to carry out the actual project work. However, sometimes predictions for project timelines are incorrect, resulting in late projects or projects completed too early. Management may have difficulty determining when to start new projects and when to wait for current projects to progress further. The purpose of VPM is to make the process of planning and tracking the progress of projects easier. One aim of VPM is to provide project managers with a visual representation of whether a project is on track, falling behind, or whether it can be paused to allow other projects to get back on track. VPM strives to help organizations, or anyone who works on projects, become more efficient.

In VPM, projects are represented as a plot on a graph, with the x-axis as the percentage of the project that is completed and the y-axis as the percentage of the buffer consumed. This is known as the Fever Chart. Each project is allocated a 50% buffer to account for errors in the

predicted time for the project. A diagonal line is drawn from the lower left corner to the upper right corner; the space below this line is colored green while the space above this line is colored red. Projects in the green zone are on track. Projects in the red zone have used up too much of their buffer for the amount of the project that is completed, and they may need some help in getting back on track. Projects "in the black," or plotted directly above the red zone on the graph, are projects that will be late.

When the project is in the green zone, the project is on track. If it lands on the diagonal line, it is progressing as expected. Depending on where the project falls in the green zone, resources for the green project may be spared to help projects in the red zone get back on track. When a project is in the red zone, it has consumed too much of its buffer too soon and it is at risk of being late. Depending on where the project falls in the red zone, experts or resources from other projects may be called in to help the project get back on track. Projects in the black zone are projects that will be late. They have used all of their allocated buffers too soon in the project timeline. For these projects, the customer may need to be notified of the problem or the project may need to be canceled.

The desired outcome of the project is a functioning web application that serves as a tool for managing projects according to VPM guidelines. The web app will allow users to create projects and specify the duration, tasks, and other information associated with the project. Projects in the planning stage can be duplicated and edited. When a user starts a project, they will be able to check off tasks that they complete and see a visualization of the project's progress on a colored graph.

Some of the other features of this web application include a graph known as the Multi-Project Fever Chart that shows a plot of all projects currently in progress. The app will feature a prioritized list of the tasks that are not yet completed from all projects. These tasks will be prioritized based on which zone their project is currently in. For example, tasks from a project in the black zone will be prioritized over those from a project in the red zone. Projects can exist in the "In Planning" state, the "In Progress" state, or the "Archive" state.

While these are the most important features to implement in this web application, there are many other features to mention. The web app will need to support the creation of user accounts protected by passwords as well as the ability for a user to become part of an organization. Users should be warned when different projects enter, for example, the red zone, and require attention. While this describes the basic functionality of the app, many other features will be described in detail later on. A web application created under these guidelines and with these features should help make project management easier and more efficient for its users.

IV.   Client and Stakeholder Identification and Preferences

Our client is Washington State University's Engineering and Technology Management (ETM) program, and Dr. James Holt is our primary contact for the project. Scott Mattes is also involved in the project and is a programmer brought in by Dr. Holt to help with the development of the current version of the VPM website. Our instructor, Ananth Jillepalli, will be our mentor throughout this project. The VPM website is open and free for anyone to use.

For this project, Dr. Holt requests the development of a web application for VPM. This web app will help users visualize whether a project is on track to finish on time before the due date. As described above, we will be implementing the main features of VPM, including the presentation of a project in progress through a graph showing the Project Percent Complete versus Percent

Project Buffer Consumed. This graph will be displayed with information on whether a project is on time (green) or behind the initially assigned due date (red). Furthermore, there is a Multi-Project Fever Chart to keep track of many projects' timelines in one graph. Another important use of VPM is to prioritize the list of uncompleted tasks. This ensures the uncompleted tasks in the black zone (where the buffer consumed 100%) will always appear above tasks in the red and green zones. For the programming language, the client does not have a preference and requests that the most suitable tools be used for the project. The client also suggests the use of tools that make for an easier transition to a possible mobile app version in the future.

VPM aims to aid people in visualizing project progress and ensure that they are on track to finish them on time. The current product is not ready to be fully used on the web or mobile devices as there are bugs and some features are yet to be implemented. As a result, the product will need to be fixed and packed with more features to give users a complete and satisfying experience.

V.   Glossary

VPM: Visual Project Management

ETM: Engineering and Technology Management

UX: User Experience

HTTP: Hypertext Transfer Protocol

HTTPS: Hypertext Transfer Protocol Secure

VI.   References

Holt, Dr. James, WSU Academic Outreach and Innovation - AOI. Visual Project Management by Dr. James Holt. (Apr. 13, 2012). Accessed: Sep. 20, 2022. [Online Video]. Available: https://youtu.be/DPFTJayYrnk

J. Holt. "In Progress." Visual Project Management. https://www.visualprojmgmt.com (accessed Sep. 20, 2022).