
Chalk Mountain Services

**Chalk Mountain Asset Management Tool
Vision**

Version 2.0

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Vision	Date: 30/04/2023

Revision History

Date	Version	Description	Author
25/09/2022	1.0	First Draft	Matthew Bolding, Joey Flores, Emma Sanders, Zylar Niece
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Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

Table of Contents

1. Introduction	4
1.1 Background	4
1.2 References	4
2. Business Requirements	5
2.1 Business Opportunity/Problem Statement	5
2.2 Business Objectives	5
2.3 Success Metrics	5
2.4 Vision Statement	5
2.5 Business Risks	5
2.6 Business Assumptions and Dependencies	6
3. Stakeholder Profiles and User Descriptions	7
3.1 Stakeholder Profiles	7
3.2 User Environment	8
3.3 Alternatives and Competition	8
4. Scope and Limitations	9
4.1 Product Perspective	9
4.2 Major Features / Scope	9
4.3 Deployment Considerations	11
5. Other Product Requirements	11

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

Vision

1. Introduction

The purpose of this document is to collect, analyze, and define the business requirements, desired outcomes and wanted features of our asset management project for Chalk Mountain Services of Texas, LLC (“the company”). With an inventory of over 1300 trucks and trailers, it’s key to know what equipment and assets are available at any given time. There is also an additional critical need to have a secure way to maintain different access restrictions to users to ensure that the correct information is getting passed along through the company to enable a successful and efficient business.

1.1 Background

Chalk Mountain Solutions is a transportation and logistic company that handles and organizes the transportation of hundreds of trailers and tractors throughout Texas. The treacherous desert areas that they use as mode of transportation for their trailers are harsh dirt paths that can and do cause severe damages to their equipment. The need for efficient and constant communication is vital to their success and longevity of their assets. If equipment that is damaged is not properly accounted for in the system, then it will lead to equipment being inefficiently used and severe miscommunication between administration, mechanics, and drivers.

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

2. Business Requirements

2.1 Business Opportunity/Problem Statement

Throughout the day, tractor trailers drive through the rugged west Texas landscape, hauling fracking sand to drill sites, and due to extreme conditions, it's not uncommon to have a piece of machinery require maintenance to maintain a safe working environment. Upon discovery, an employee notes the status change of an asset in the current system, but anyone may make this change—even if the person isn't on-site. The ability for any person to alter the state of an asset affects any entity—including planners and the planning algorithm, truck drivers, mechanics, yard operators, and safety personnel—which consumes information from the asset management tool. The impact of which is that there's uncertainty as to which assets—tractors and trailers—are either in or out of service can disrupt the flow of sand to fracking sites. A successful solution would be to design a new system which restricts the options various users have on an asset management tool to ensure data integrity and accuracy.

2.2 Business Objectives

BO-1: Improve the accuracy of the state of assets by restricting who can modify assets' states.

BO-2: Reduce the number of instances a planner must intervene to correct a drive due to incorrect asset state.

2.3 Success Metrics

SM-1: The system will operate in such a way to promote the accuracy of asset status to at least 90%.

SM-2: Save the company at least 250-300 hours per month, promoting higher driver efficiency.

2.4 Vision Statement

For all Chalk Mountain truck drivers, mechanics, safety personnel, coordinators, and administrators who need an asset management dashboard, the Chalk Mountain Asset is a web-based application that ensures the correct updating of tractors and trailers by all target customers by restricting their operations based on their logistics role. Unlike their current system, which ages and allows any user to perform an action—either moving an asset into or out of service, our product will ensure data integrity and log user activity.

2.5 Business Risks

RI-1: The system might not operate in such a fashion to promote the correctness of asset states. (Probability = 2, Impact = 9).

RI-2: The end users might not find the new system easier and more intuitive to use than the current solution. (Probability = 2; Impact = 6)

2.6 Business Assumptions and Dependencies

AS-1: Yard Coordinators and Mechanics will have mobile devices or access to a desktop web browser with which to interact with the system.

DE-1: The system relies on the schema of the asset database remaining as is.

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

3. Stakeholder Profiles and User Descriptions

3.1 Stakeholder Profiles

Stakeholder	Major value or benefit from this product	Attitudes	Major features of interest	Constraints	End user or not?
Corporate Management	Improved employee productivity; cost savings for the entire company	Excited: better data, better tracking ability, and better interface.	Cost and employee time savings.	None identified	No
Planners	With a higher percentage of assets in the correct state, planners will intervene less when the algorithm creates trips for drivers.	Skeptical, unsure about the new application.	Improving the accuracy of asset states.	Minimal training required.	Yes
Mechanics and Yard Coordinators	Easy-to-use interface, and role-restricting actions to certain users.	Skeptical, unsure about the new application.	Interface updates and better mobile support.	Minimal training required.	Yes
Driver	Less downtime between drives; higher productivity by not being scheduled to use tractors or trailers out-of-service.	N/A	Decreasing the instances of being scheduled with an out-of-service asset.	None identified.	No

3.2 User Environment

The user environment for the system-to-be is both on a standard desktop as well as on a mobile device, like an iPhone or Android.

3.3 Alternatives and Competition

Although the company has explored various commercial off-the-shelf products in an attempt to address business problems in the past, they have continually expressed interest and success in developing their own software. In turn, the company believes they'll be one step ahead of any competition and better solve the associated challenges of transporting fracking sand across the rugged Texas terrain.

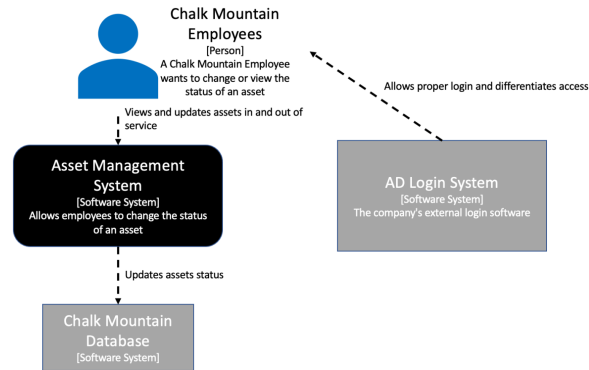
Since the company primarily uses in-house software, the only competition our asset management tool will face is their current solution—an older web application that's challenging to use on mobile devices and visually dull. The current system is in every way the minimum viable product.

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

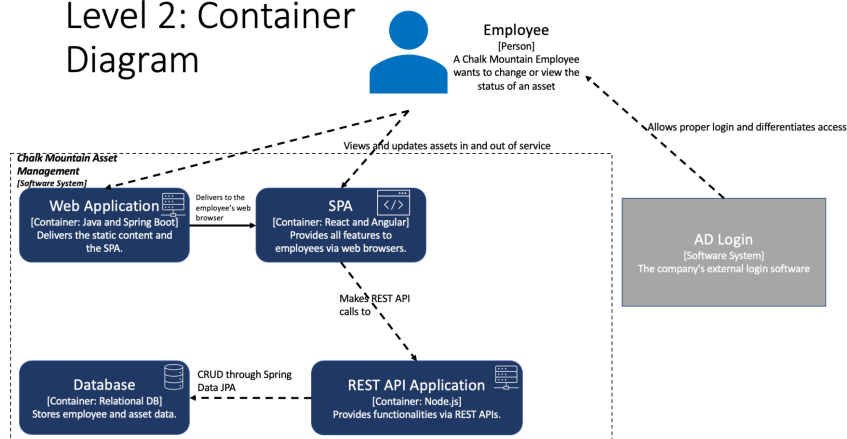
4. Scope and Limitations

4.1 Product Perspective

Level 1: System Context Diagram



Level 2: Container Diagram



4.2 Major Features / Scope

FE-1: The system shall be easy-to-use and operate.

FE-2: The assets may be filtered by tractor, trailer, or agnostic of the type of asset.

FE-3: The assets may be filtered by the status—in-service or out-of-service—or agnostic of the status.

FE-4: A user may sort the table either by asset type, asset number, location, status, date of modification, the employee who last modified the asset, or the notes associated with an out-of-service asset.

FE-5: A user may search for asset type, asset number, location, status, date of modification, the employee who last modified the asset, or the notes associated with an out-of-service asset.

FE-6: A user may change the number of assets displayed per page and which page is currently displayed.

FE-7: A user can login to the application to view assets but may login should they desire to modify assets.

FE-8: Assets out-of-service may be moved in-service, and assets in-service may be moved out-of-service with provided notes.

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

4.3 Deployment Considerations

The system shall be deployed on the company's on-prem servers. One virtual machine will be the web application server, while another will host the database. Long term, however, the company will deploy the application on Azure.

Chalk Mountain Asset Management Tool	Version: 2.0
Vision	Date: 30/04/2023

5. Other Product Requirements

None known.