Milestone 1

Team Sriram
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1 Executive Summary

This milestone, the first of a series, documents the context for a software project proposed by the client: Tim Ekl. The primary stakeholders are Team Sriram (the software developers and documentors), Sriram Mohan (the course instructor), and Tim Ekl. The software solution will eventually be open-sourced which means that external developers and end-users will be involved as stakeholders, however these parties can be ignored for the time being. The current issue raised by the client is the inability to easily and consistently locate personal belongings and hardware. This milestone will cover the background of the client, their current system, involved parties, an overview of the product and costs, features of the product, and constraints to the solution; the solution is intended as a simplified asset-tracker scaled for personal usage. This document will provide utility for the next milestone which will focus on the project background, use cases, feature-to-use-case mapping, and Data Flow Diagrams.

2 Introduction

Our client, Tim Ekl, would like a system to keep track of personal belongings. Tim's profession and interests with computers have caused him to accumulate a large collection of computer hardware. Currently, Tim maintains a crude organization system which involves labeling containers in order to categorize the different areas to place objects–whether it be for storage or extraction. However, the current system is not as effective as the client would like since there have been multiple instances in which items were not found when they were needed and replaced unecessarily, resulting in lost capital. In addition, the current system's generic labeling is not a sure-fire method for finding items; they are only meant to guide Tim and help him make educated guesses concerning the general location of his items. This results in lost time looking for items which may not even exist.

The client wishes to replace the current system with one that should be comparable to corporate asset-tracking systems with the capability to tag assets with a wide variety of attributes, though more streamlined since it is intended for use on a personal scale. Since this project is an initiative from a college program, there will be no monetary capital invested towards development. However, it is expected that each developer involved in the project will invest aproximately five hours weekly towards the project; this results in roughly 340 man hours in terms of a time budget for the project. In addition, all developers will respect the client's preference to construct the product utilizing Ruby (programming language) and Sinatra (web framework). There exist more requirements and constraints which will be elaborated on later in this document. Ultimately the product will be a web application backed by a database.

3 Client Background

Tim Ekl is a Rose-Hulman graduate student who possesses a significant amount of computer hardware. He plans on using this system to be able to quickly and easily locate the equipment he wants to use. Tim is an experienced developer and plans on maintaining the system after it is finished.

4 Current System

The client does not have a software solution in place. Currently, Tim has a primitive categorization system in place which involves labeling boxes and then trying to deduce the location of a desired component. The current system poses a few issues such as not always allowing him to find his items, i.e. there have been instances where an item was found after capital was spent to replace it.

5 User/Stakeholder Description

5.1 User Profile

The client will be the main user of the system. While the client is very familiar with sophisticated technologies and software, the final product will be open-source and will be exposed to many more users who will have a broad spectrum of technical proficiency–so the final product will be made with these prospective end users in mind. The client is an accumulator of hardware and disc media, having approximately 1,000 such items which he wants catalogued.

5.2 Stakeholder Profiles

5.2.1 Stakeholder: Tim Ekl

Role: Client
Success: The final product reasonably satisfies the needs and requirements as defined.
Failure: The final product is not easily usable and cannot be extended without major reworking.

5.2.2 Stakeholder: Team Sriram

Role: Requirements, Specifications, and Development Team
Success: The final product has its requirements defined and prioritized with a satisfactory amount of the high priority features implemented. The client is able to easily extend and work with the source code provided.
Failure: The final product delivered fails to successfully implement the critical features requested by the client.

5.2.3 Stakeholder: Sriram Mohan

Role: Class Instructor
Success: Team Sriram understood the concepts and processes utilized during the course of the project. The client is satisfied with the final product.
Failure: Team Sriram was unable to deduce any concepts or processes discussed during the course. The client is not satisfied with the final product.

5.3 User Environment

- The client uses Chrome whenever possible and prefers that development support Chrome and Firefox browsers.

- The final product ought to operate on a Linux server with standard programming languages, programming frameworks, and Apache. Additional packages can be installed if necessary.

5.4 User Needs

5.4.1 Primary

- (N0) Search for parts based off their attributes.

- (N1) Deploy on Linux architecture.

- (N2) Identify items via bar codes.

5.4.2 Secondary

- (N3) Insert objects in the system at any point; do not freeze the database.

- (N4) Use REST (not SOAP) for the software architecture.

- (N5) Modify objects; including adding notes to the objects.

5.4.3 Optional

- (N6) Create web API for extending into a web application.

- (N7) Write it in a preferred language and web framework (Ruby with Sinatra).

5.5 Alternatives and Competition

Tim has researched alternative solutions but has not been able to find one that fits his needs. Alternative systems have been intended for corporate use, are overly complicated, and designed for large scale use. Other issues associated with these products include incompatibility with non-Windows environments, excessive cost, and locally restricted access (not accessible through the Internet). The client has also considered making a system for himself, however he has never had the time to implement it.

6 Product Overview

6.1 Product Perspective

The software will be an independent system–hosted on one of Tim's servers. The product will replace the current solution by electronically keeping track of exactly where a specific piece of hardware is.**

6.2 Elevator Statement

Everyone accumulates items that they currently have no use for, but do not want to dispose of. Given enough time, a person will accumulate more items than they will be able to consciously keep track of. We propose a web application which will allow for simple and streamlined asset tracking.

6.3 Summary of Capabilities

Customer Benefit	Supporting Features
Increased organization of inventory	Indexing of possessed items; searchable database of items; logging of items location and state
Ease of information access	Web-based system; centralized database

6.4 Assumptions and Dependencies

- Network / web hosting will be available

- Ruby Sinatra framework will be available to run solution

6.5 Rough Estimate of the Cost

Since the solution will be the product of a course project, no[Eric] monetary capital will be given nor required. As for calculating a time budget, given four team members as well as the project spanning over two courses, 340 man hours will be invested into the final product (16 hours per week).

7 Nonfunctional Requirements

7.1 General

- Runs on local network, so make sure it's responsive

- Local-file based (use SQLite? Sinatara uses this)

- Be able to do this for transferring stored data: Take directory, tar, move it, untar it

- Reliability: no crash, or at least handle the crash gracefully (avoid hard server restarts or corruptions)

7.2 Testing

- Not high priority, but at a minimum, try to do it manually

- Cucumber prefered

- Rspec another option

8 Feature Listing

ID	Feature	Effort	Risk
0	Search for tags/matching attribute (bar code, text description, unified search [all three])		
1	Insert objects in database		
2	Each type of thing has a set of attributes related to specific categories (optional entry)		

	N0	N1	N2	N3	N4	N5	N6	N7
F0	X	X						
F1			X					
F2	X		X		X	X		

9 Constraints

ID	Source	Constraint	Rational
0	Development	The project must be open source.	The ethos of the client and his desire to be able to extend the project's functionality easily.
1	Time	The project must be completed in one school year.	This is the period of duration for the Junior Project Sequence.
2	Budget	The project must be completed without funding from the client.	This is an academic undertaking and is not for monetary gain.
3	Operating System	The solution must be able to be run / hosted in a non-Windows environment.	The client's existing hosting is Linux / Mac and there will be no addition of a Windows server

10 Index and Glossary

11 References