Software Requirements Specification

for

TimeTracker 2.0

Version 0.3

Prepared by Sarah Mercier

Strictly Business

9/2/10

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Sarah Mercier	8/26/10	Began initial release.	0.1
Sarah Mercier	8/31/10	Finished initial release minus glossary, appendices and diagrams.	0.2
Sarah Mercier	9/2/10	Added diagrams and Impersonate Other Users feature for Administrators and Project Managers.	0.3

1. Sign-offs

I agree that this document represents our best understanding of the requirements for this project today and the system described will satisfy our needs. I agree to make future changes in this baseline through the project's defined change process. I realize that approved changes might require us to negotiate the cost, resources, and schedule commitments for this project.

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2. Introduction

2.1 Purpose

This SRS describes the software functional and nonfunctional requirements for TimeTracker 2.0. TimeTracker 2.0 will permit users to manage timesheets and leave time online and generate, print or export corresponding reports related to that data.

2.2 Document Conventions

No document conventions are being used at this time.

2.3 Intended Audience and Reading Suggestions

This document is intended to be used by members of the project team that will implement and verify the correct functioning of the system.

2.4 Project Scope

TimeTracker 2.0 is a web-based application that will allow users to manage their timesheets and leave through an intuitive, easy-to-use interface. It will have a corresponding Android application. The system will also allow reports on that data to be easily generated, printed or exported. A detailed description of the project scope can be found in *TimeTracker 2.0 Vision and Scope*.

2.5 References

1. Mercier, Sarah. *TimeTracker 2.0 Use Case Document*.
2. Mercier, Sarah. *TimeTracker 2.0 Vision and Scope Document*. Version 0.2. August 31, 2010.

3. Overall Description

3.1 Product Perspective

TimeTracker 2.0 is a new system that replaces the current system hosted on Strictly Business servers for managing timesheets and leave time. The context diagram in Figure 1 illustrates the external entities and system interfaces. The system is expected to evolve over at least three releases, ultimately allowing for complete streamlining of the payroll process, mobile phone support and other features specified more clearly in *TimeTracker 2.0 Vision and Scope*.

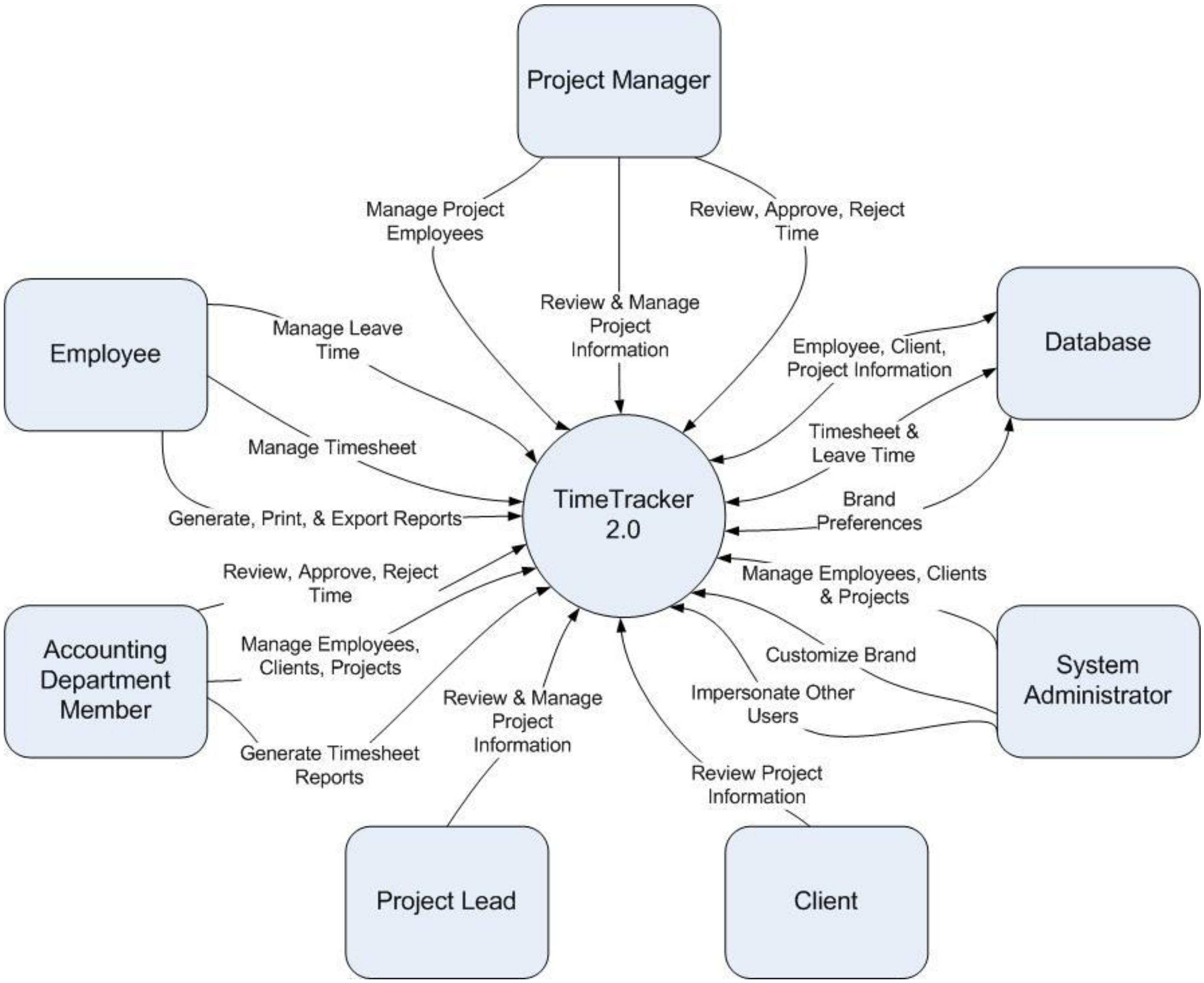

Figure 1

Context diagram for TimeTracker 2.0.

<u>Note</u>: Project Manager, Project Lead, and Accounting Department Member are all specialized forms of Employee and have access to all Employee actions in addition to their own specialized actions. System Administrators have access to all actions within the system in addition to their own specialized actions.

3.2 Product Features

FE-1: Data and application hosting on Google Apps
FE-2: Log and submit time spent on projects and clients
FE-3: Manage leave time
FE-4: Generate, print and export reports

FE-5: Employee management
FE-6: Time approval and rejection with notification
FE-7: Integration of Google Calendar, Mail and Talk
FE-8: Brand customization
FE-9: Time management through Android application
FE-10: Impersonate other users
FE-11: Project/Client Management

See Figure 2 for the relationship between these features. Please note that this document covers all features. For a list of features associated with specific releases of each project, please see *TimeTracker 2.0 Vision and Scope Document*.

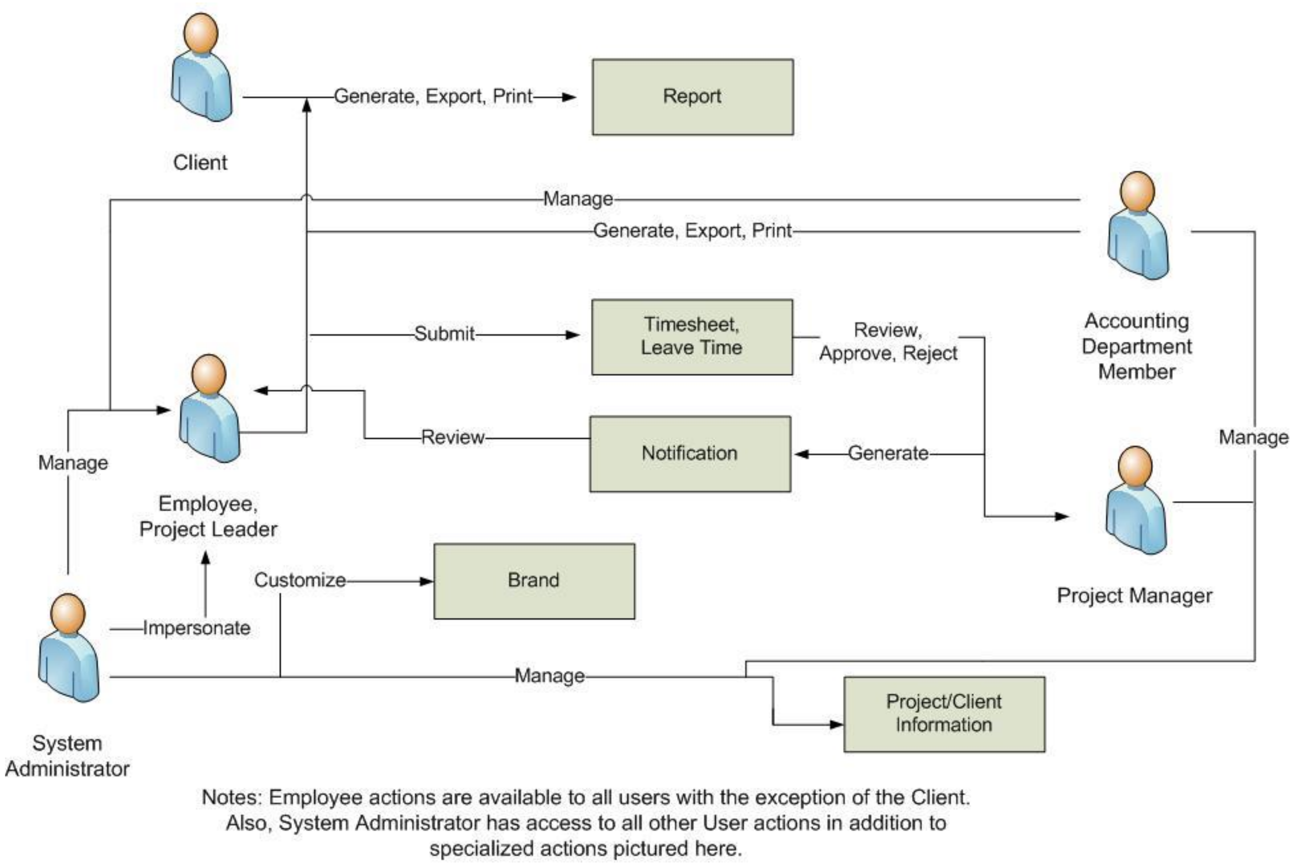

Figure 2
Major features and how they relate.

3.3 User Classes and Characteristics

Employee (favored)	The Employee is the person or people who work for the business using TimeTracker 2.0 and need to log time spent on clients/projects and manage leave. They will also use the new

	system to manage company email, schedule business meetings in the calendar, and communicate with other employees through instant messenger. Some might have to be trained to use the new system. Employees will have the ability to generate reports associated with their own work only.
Project Manager (favored)	A Project Manager is a special employee or group of employees which are in charge of managing a particular project. Project Managers will use the new system in the same way as a regular user, but will also need the ability to view project status and approve/reject timesheets. Project Managers will also need the ability to manage employees associated with their projects as well. Project Managers will have the ability to generate reports associated with their own work as well as the projects which they manage.
Project Lead	A Project Lead is a special employee or group of employees who are the lead on a particular project or projects. They will have the ability to approve/reject time in the event that the Project Manager is unable to do so. Project Leads, like Project Managers, will have the ability to generate reports associated with their own work as well as the projects which they are leading.
System Administrator	The Administrator is the person or people who will have any and all the privileges of all other user types. They will be able to impersonate other employees within the system. They will also have the authority to edit the branding and manage/generate reports regarding all projects/employees.
Accounting Department Member	The Accounting Department Member is the person or group of people that will be in charge of all payroll activities. They will need to have the ability to generate timesheet reports.
Client	The client is the person or people who are employing the talents of the business using TimeTracker 2.0. They will use the new system to view the remaining time and status reports associated with all their current project(s).

3.4 Operating Environment

OE-1:	System is not dependent on geographical areas.
OE-2:	System shall operate in newest versions of all web browsers.
OE-3:	There should be no constraint on users being able to access the system at a given time.
OE-4:	Data is generated by online forms and stored in the Google App Engine database.
OE-5:	Continuous service is preferred, but as long as there is no data loss, mino service interruptions can be tolerated.
OE-6:	Personal data will be stored in the database, so the Google App Engine database must be secure.
OE-7:	jQuery javascript library will be needed to create the user interface for th system.

3.5 Design and Implementation Constraints

CO-1:	All data shall be stored on Google App Engine.
CO-2:	User interface shall be composed using jQuery javascript library.

3.6 User Documentation

No user documentation information at this time.

3.7 Assumptions and Dependencies

AS-1:	No more than 500 MB of data stored on Google App Engine.
AS-2:	No more than 5 million page views monthly.
AS-3:	Users have a Google Account with which they can login.
AS-4:	Users have javascript enabled.
DE-1:	Free Google App Engine account.
DE-2:	jQuery javascript library (for user interface).

4. System Features

4.1 Data and application hosting on Google Apps

4.1.1 Description and Priority

Application will need to be hosted on Google App Engine.

Priority: high.

4.1.2 Stimulus/Response Sequences

Not applicable.

4.1.3 Functional Requirements

Not applicable.

4.2 Log and submit time spent on projects and clients

4.2.1 Description and Priority

Users will need to be able to log time spent on particular projects or clients along with descriptions of the activities which comprised the time spent. At the end of pay periods, users will need to submit their time for approval.

Priority: high.

4.2.2 Stimulus/Response Sequences

Stimulus: User requests to review time.
Response: System retrieves and displays all time logged for current time period.

Stimulus: User requests to log time.
Response: System adds time to Google App Engine database and redirects user to dashboard displaying all time logged for current pay period.

Stimulus: User requests to edit logged time
Response: System recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to duplicate logged time to a different day.
Response: System copies data from currently selected submission to selected 'duplicate' day.

Stimulus: User requests to submit time.
Response: System flags all time associated with the current pay period that has not already been submitted as 'needs approval'.

4.2.3 Functional Requirements

Time Review	The system shall allow a user who is logged in to review their time.
Time Review Log	The system shall allow a user who is logged in to log time.
Time Review Submit	The system shall allow a user who is logged in to submit time.
Time Submit Incomplete	The system shall check to see if all required information is present, and prompt the user to fill out missing data and resubmit.
Time Submit Duplicate	The system shall copy selected time submission to new day(s).

4.3 Manage leave time

4.3.1 Description and Priority

Users will need to be able to manage leave time, including sick and vacation days.

Priority: high.

4.3.2 Stimulus/Response Sequences

Stimulus: User requests to review leave time.
Response: System retrieves and displays all leave time logged for current time period.

Stimulus: User requests to edit logged leave time

Response: System recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to duplicate logged leave time to a different day.
Response: System copies data from currently selected submission to selected 'duplicate' day.

Stimulus: User requests to submit leave time.
Response: System flags all time associated with the current pay period that has not already been submitted as 'needs approval'.

4.3.3 Functional Requirements

Leave Time Review	The system shall allow a user who is logged in to review their leave time.
Leave Time Review Submit	The system shall allow a user who is logged in to submit leave time.
Leave Time Submit Incomplete	The system shall check to see if all required information is present, and prompt the user to fill out missing data and resubmit.
Leave Time Submit Duplicate	The system shall copy selected leave time submission to new day(s).

4.4 Generate, print, and export reports

4.4.1 Description and Priority

Application will need to be able to generate reports for project managers and clients as well as administrators. Clients and project managers could generate and export or print reports for their records.

Priority: medium.

4.4.2 Stimulus/Response Sequences

Stimulus: User requests to generate a report.
Response: System displays form containing parameters and submit button.

Stimulus: User requests to submit a report generation form.
Response: System retrieves information from database and displays report in web browser along with 'Export' and 'Print' buttons.

Stimulus: User requests to export report.
Response: System exports report to selected export option and prompts user to open/save/cancel in web dialog box.

Stimulus: User requests to print report.
Response: System redirects user to pdf version of report in web browser.

4.4.3 Functional Requirements

Report Submit	The system shall allow the user to fill out a form to be submitted through the website.
Report Submit Incomplete	The system shall check to see if all required information is present, and prompt the user to fill out missing data and resubmit.
Report Submit Recall	The system shall recall any previously saved data and fill in the application automatically
Report Export	The system shall recall data from database and format in file according to export preference.
Report Print	The system shall recall data from database, generate a PDF of formatted data and display PDF.

4.5 Employee management

4.5.1 Description and Priority

Administrators will be able to log into the system and manage employee information. Project managers will be able to add/drop employees from being associated with projects they are managing.

Priority: high.

4.5.2 Stimulus/Response Sequences

Stimulus: User requests to review employee.
Response: System displays information related to requested employee.

Stimulus: User requests to add employee.
Response: System checks user permissions and if employee does not already exist in database adds it and displays list of current employees with notification of newest employee added at top.

Stimulus: User requests to remove employee.
Response: System checks permissions and if employee exists in database removes it and displays list of current employees with notification of employee removed at top.

Stimulus: User requests to edit employee.
Response: System checks user permissions and recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to submit changes to employee.
Response: System checks user permissions and updates employee in database and returns to list of employees with notification at top of recently added entity.

Stimulus: User requests to view all employees.

Response: System checks user permissions and displays list of all current employees.

4.5.3 Functional Requirements

Employee Add	The system shall let a User that is an administrator or Project Manager with correct permissions who is logged into the system to add employees.
Employee Remove	The system shall let a User that is an administrator or Project Manager with correct permissions who is logged into the system to remove employees.
Employee Edit	The system shall let a User that is an administrator or Project Manager with correct permissions who is logged into the system to edit employees.
Employee Review	The system shall let a User that is an administrator or Project Manager with correct permissions who is logged into the system to review employees.
Employee Change Cancel	The system shall let a User that is an administrator or Project Manager with correct permissions who is logged into the system to abandon the process of changing an employee (add/delete/edit) without submitting changes.

4.6 Time approval and rejection with notification

4.6.1 Description and Priority

Application will need to allow users who are Administrators or who are Project Managers/Leads with the correct permissions to approve/reject submitted timesheets and leave time. The system should then generate a notification to be displayed to the user who submitted the time when they next log in.

Priority: high.

4.6.2 Stimulus/Response Sequences

Note: For the sake of simplicity, both timesheets and leave time will be referred to as time and Administrators and Project Managers will be referred to as users for the remainder of this section.

Stimulus: User requests to review time.
Response: System displays requested submitted time.

Stimulus: User requests to approve time.
Response: System checks user permissions and flags time as ‘approved’ in database. System then generates notification to be displayed to the user who submitted the time upon next login.

Stimulus: User requests to reject time.
Response: System checks permissions and prompts user for reason, then flags time as ‘rejected’ in database and generates notification with reason to be displayed to user who submitted the time upon next login.

4.6.3 Functional Requirements

Time Review	The system shall let a user who is an administrator or a project manager with the correct permissions and logged into the system to review time.
Time Review Approve	The system shall let a user who is an administrator or a project manager with the correct permissions and logged into the system to approve submitted time.
Time Review Reject	The system shall let a user who is an administrator or a project manager with the correct permissions and logged into the system to reject submitted time, giving an optional reason.
Time Review Cancel	The system shall let a user who is an administrator or a project manager with the correct permissions and logged into the system to exit the review of time without either approving or rejecting it.

4.7 Integration of Google Calendar, Mail and Talk

4.7.1 Description and Priority

Application will allow users who are logged in to access Google Calendar, Mail and Talk through the application.

Priority: medium.

4.7.2 Stimulus/Response Sequences

Stimulus: User requests to review time.
Response: System retrieves and displays all time logged for current time period.

Stimulus: User requests to add time.
Response: System adds time to Google App Engine database and redirects user to dashboard displaying all time logged for current pay period.

Stimulus: User requests to start stopwatch.
Response: System displays timer along with ‘Pause’ and ‘Submit’ buttons.

Stimulus: User requests to pause stopwatch.
Response: System stops timer and displays ‘Resume’ and ‘Submit’ buttons.

Stimulus: User requests to submit stopwatch time.
Response: System pulls stopwatch time and adds it to Google App Engine database, then redirects user to dashboard displaying all time logged for current pay period.

Stimulus: User requests to edit logged time
Response: System recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to duplicate logged time to a different day.
Response: System copies data from currently selected submission to selected ‘duplicate’ day.

Stimulus: User requests to submit time.
Response: System flags all time associated with the current pay period that has not already been submitted as 'needs approval'.

4.7.3 Functional Requirements

Time Review	The system shall allow a user who is logged in to review their time.
Time Review Log	The system shall allow a user who is logged in to log time.
Time Review Submit	The system shall allow a user who is logged in to submit time.
Time Submit Incomplete	The system shall check to see if all required information is present, and prompt the user to fill out missing data and resubmit.
Time Submit Duplicate	The system shall copy selected time submission to new day(s).

4.8 Brand customization

4.8.1 Description and Priority

Administrators who are logged in will be able to customize the overarching brand of the entire application through a simple web form.

Priority: low.

4.8.2 Stimulus/Response Sequences

Stimulus: Administrator requests to review brand.
Response: System checks permissions and displays current brand preferences.

Stimulus: Administrator requests to change brand.
Response: System takes new brand preferences and updates brand information in database.

Stimulus: Administrator/User requests to cancel changes.
Response: System reverts theme to previous version without submitting any changes.

4.8.3 Functional Requirements

Brand Review	The system shall let a user who is an administrator and logged into the system to review the brand preferences.
Brand Review Change	The system shall let a user who is an administrator and logged into the system to change the brand preferences.
Brand Review Cancel	The system shall let a user who is an administrator and logged into the system to cancel the brand preference changes without submitting them to the database.

4.9 Time management through Android application

4.9.1 Description and Priority

Application will have an Android application component which will have stopwatch capability and allow users to manage time from their mobile devices.

Priority: low.

4.9.2 Stimulus/Response Sequences

Stimulus: User requests to review time.
Response: System retrieves and displays all time logged for current time period.

Stimulus: User requests to log time.
Response: System adds time to Google App Engine database and redirects user to dashboard displaying all time logged for current pay period.

Stimulus: User requests to edit logged time
Response: System recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to duplicate logged time to a different day.
Response: System copies data from currently selected submission to selected 'duplicate' day.

Stimulus: User requests to start stopwatch.
Response: System displays timer which begins counting along with 'Pause' and 'Submit' buttons.

Stimulus: User requests to pause stopwatch.
Response: System displays timer which begins counting along with 'Resume' and 'Submit' buttons.

Stimulus: User requests to submit time.
Response: System flags all time associated with the current pay period that has not already been submitted as 'needs approval'.

4.9.3 Functional Requirements

Android Time Review	The system shall allow a user who is logged in to review their time.
Android Time Review Log	The system shall allow a user who is logged in to log time.
Android Time Review Submit	The system shall allow a user who is logged in to submit time.
Android Time Submit Incomplete	The system shall check to see if all required information is present, and prompt the user to fill out missing data and resubmit.
Android Time Submit Duplicate	The system shall copy selected time

	submission to new day(s).

4.10 Impersonate other users

4.10.1 Description and Priority

Administrators will have the ability to impersonate other users, allowing them to troubleshoot more easily and correct information if necessary.

Priority: medium.

4.10.2 Stimulus/Response Sequences

Stimulus: User requests to view all users.
Response: System retrieves and displays a list of all users within the system.

Stimulus: User requests to impersonate user.
Response: System changes currently logged in user to the selected user.

4.10.3 Functional Requirements

Impersonate User View	The system shall allow a user who is logged in and is an administrator or project manager with the correct permissions to view a list of all users within the system.
Impersonate User Submit	The system shall allow a user who is logged in and is an administrator or project manager with the correct permissions to impersonate other users.
Impersonate User Cancel	The system shall allow a user who is logged in and is an administrator or project manager with the correct permissions who is currently impersonating another user to cancel their impersonation, reverting them back to their original user identity.
Impersonate User Invalid	The system shall check to see if the desired user is valid, and prompt the user to choose a different user and resubmit if it is not.

4.11 Project/Client management

4.11.1 Description and Priority

Administrators and Project Managers/Leads will be able to log into the system and manage project/client information. Project managers/leads will be able to review and manage projects they are currently part of, but not be able to create new projects like Administrators.

Priority: high.

4.11.2 Stimulus/Response Sequences

Stimulus: User requests to review project/client.
Response: System displays information related to requested project/client.

Stimulus: User requests to add project/client.
Response: System checks user permissions and if project/client does not already exist in database adds it and displays list of current projects/clients with notification of newest employee added at top.

Stimulus: User requests to remove project/client.
Response: System checks permissions and if project/client exists in database removes it and displays list of current projects/clients with notification of project/client removed at top.

Stimulus: User requests to edit project/client.
Response: System checks user permissions and recalls from the database the information that has been saved, and fills in the data on a new form for the user to fill out.

Stimulus: User requests to submit changes to project/client.
Response: System checks user permissions and updates project/client in database and returns to list of projects/clients with notification at top of recently added entity.

Stimulus: User requests to view all project/client.
Response: System checks user permissions and displays list of all current projects/clients.

4.11.3 Functional Requirements

Project/Client Add	The system shall let a User that is an administrator or Project Manager/Leader with correct permissions who is logged into the system to add projects/clients.
Project/Client Remove	The system shall let a User that is an administrator or Project Manager/Leader with correct permissions who is logged into the system to remove projects/clients.
Project/Client Edit	The system shall let a User that is an administrator or Project Manager/Leader with correct permissions who is logged into the system to edit projects/clients.
Project/Client Review	The system shall let a User that is an administrator or Project Manager/Leader with correct permissions who is logged into the system to review projects/clients.
Project/Client Change Cancel	The system shall let a User that is an administrator or Project Manager/Leader with correct permissions who is logged into the system to abandon the process of changing a project/client (add/delete/edit) without submitting changes.

5. External Interface Requirements

5.1 User Interfaces

UI-1: Web application shall permit complete navigation and food item selection using the keyboard alone, in addition to using mouse and keyboard combinations.
UI-2: Android application shall support hardware as well as virtual keyboard input.

5.2 Hardware Interfaces

No hardware interfaces have been identified.

5.3 Software Interfaces

SI-1: Time Management System
- SI-1.1: The time management system shall transmit data to be stored on Google App Engine.
- SI-1.2: Upon completion, system will display notification to user of result of data transmission.
- SI-1.3: If applicable, system will then generate notification to be displayed.

SI-2: Database - The system shall communicate with a database through a programmatic interface for the following operations:
- SI-2.1: To manage employee, client, and project data.
- SI-2.2: To allow a user to submit timesheets/leave time.
- SI-2.3: To allow an administrator/project manager to approve/reject time.
- SI-2.4: To store brand and theme preferences.

5.4 Communications Interfaces

CI-1: The system shall send a notification to the user to inform them of time approval or rejection.
CI-2: The system shall send an email message to confirm registration with the system.
CI-3: The system shall send a notification to inform the user of new email messages, instant messages, or calendar event invitations.

6. Other Nonfunctional Requirements

6.1 Performance Requirements

PE-1: All Web pages generated by the system shall be fully downloadable in no more than 10 seconds over a 40KBps modem connection.

PE-2: Responses to queries shall take no longer than 7 seconds to load onto the screen after the user submits the query.

6.2 Safety Requirements

No safety requirements have been identified.

6.3 Security Requirements

SE-1: Users shall be required to log in to the system for all operations.
SE-2: The system shall permit only staff members who are on the list of authorized administrators to create or edit brand.
SE-3: The system shall permit users who are not project managers or administrators to view only their own information, not the information of other users.
SE-4: All network transactions that involve financial information or personally identifiable information shall be encrypted.

6.4 Software Quality Attributes

No software quality attributes have been identified.

Appendix A: Glossary

No glossary terms available at this time.

Appendix B: Analysis Models

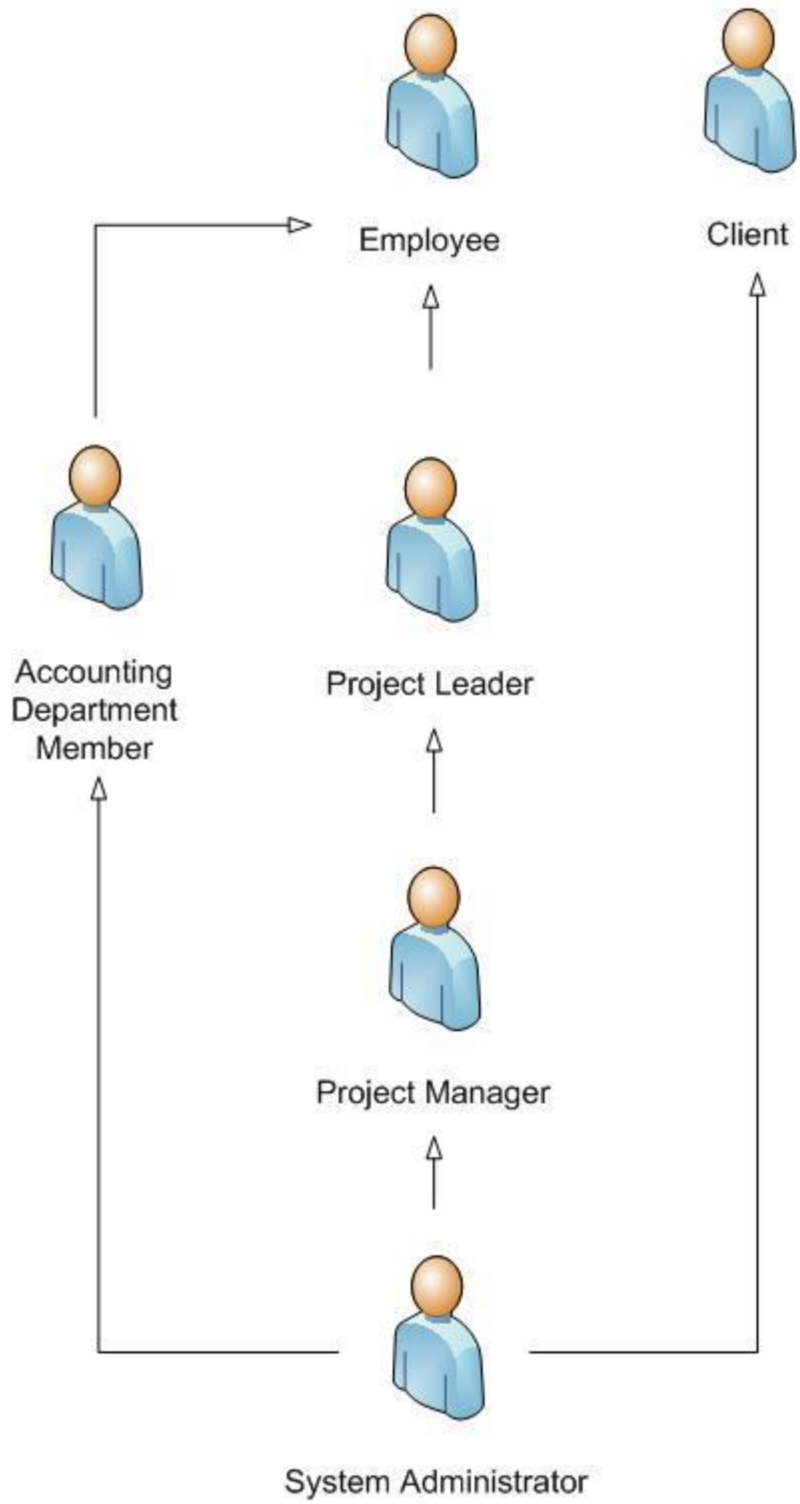

Figure 3
System roles and how they relate. *(Note: All arrows indicate extensions of user types.)*

Appendix C: Issues List

No issues have been identified.