Web-based Meeting Scheduler
Phase II: Final
CS 6361 Section 001 Spring 2010

Vision Document
Version 1.1

April 27, 2010

Team Awesome

Team Website: http://www.utdallas.edu/~rhb081000/6361/

Phase II Leaders: Rachel Bock and Victor Isbell

Team member	Student ID	Email Address
Rachel Bock	rhb081000	rhb081000@utdallas.edu
Amy Polcari	ajp081000	ajp081000@utdallas.edu
Ramon Rivera	rar096020	rar096020@utdallas.edu
Chih-Lin "Leo" Cheng	cxc094120	cxc094120@utdallas.edu
Swathi Kandimalla	sxk083300	sxk083300@utdallas.edu
Nikhil Mishra	nkm090020	nkm090020@utdallas.edu
Victor Isbell	vri021000	vri021000@utdallas.edu
Ruben "Gabe" Cavazos	rgc061000	rgc061000@utdallas.edu

Submitted to:
Dr. Lawrence Chung
Associate Professor,
Department of Computer Science
The University of Texas at Dallas

Revision History

Version	Primary Author(s)	Description of Version	Date Completed
1.0	R. Bock	Phase II: Interim Vision Document	April 15, 2010
1.1	R. Bock	Final formatting and editing	April 25, 2010

Table of Contents

1. Introduction

1.1 Purpose

The purpose of the WMS is to automate the process of scheduling a meeting while considering time constraints of all the participants. The system will enable users to initiate and schedule meetings while viewing times that potential meeting attendees are available and busy. Through this automated process, meetings will be scheduled with a great deal more efficiency than the prior method of selecting and scheduling meeting times which required multiple communications between meeting initiator and participants before a time could be selected.

1.2 Scope

The WMS being developed assists in automating the meeting scheduling process by displaying potential meeting times within multiple participants' schedules, giving users a powerful tool to schedule and organize meetings. The WMS system will also assist in scheduling parallel meetings, virtual meetings, and altering or canceling previously scheduled meetings. The WMS is designed in such a way that it can be useful for scheduling meetings of various sizes and utilized by users from a wide range of technological background.

1.3 Definitions, Acronyms, and Abbreviations

WMS: Web-Based Meeting Scheduler
DA: Domain Assumptions
FR: Functional Requirements
NFR: Non-Functional Requirements
Exclusion set: A set of times when a Potential Meeting Attendee cannot attend the meeting.
Preference set: A set of times when a Potential Meeting Attendee prefers to have meetings scheduled.
Date range: A time interval selected by the Meeting Initiator in which to schedule a meeting.
Strong conflict: When there are no times within in the date range when all potential meeting attendees are able to attend the meeting. All times in the date range fall within at least one Potential Meeting Attendee's exclusion set.
Weak conflict: When there are no times within the date range when all Potential Meeting Attendees prefer to have a meeting scheduled. No times in the date range fall within all of the Potential Meeting Attendees' preference sets.
No Conflict: The state when neither a Strong or Weak conflict exists.
Meeting Initiator (MI): A person who creates and schedules a meeting through the WMS.
Important Participant (IP): A person whose presence is important for the meeting but who is not actively participating (for example, a special guest).
Active Participant (AP): A person who will be actively engaged in the meeting (for example, a speaker or presenter) and is necessary for the meeting to take place.
Regular Participant (RP): A person who will be at the meeting but not actively participating or hosting.
Potential Meeting Attendee (PMA): An important, active, or regular participant who has been invited to the meeting.

1.4 References

- Requirement Engineering – Advanced Requirement Engineering. CS/SE 6361 Section 001, Spring 2010: http://www.utdallas.edu/~chung/RE/syllabus.htm
- Software Project Management Plan Template < OOSE < Twiki. Software Project Management Plan Template:http://wwwbruegge.informatik.tu-muenchen.de/twiki/bin/view/OOSE/SoftwareProjectManagementPlanTemplate
- Project Phase I: Requirements Elicitation: Initial Understanding:http://www.utdallas.edu/~chung/RE/Project1.pdf
- Project Phase II: Requirements Elicitation, Specification, and Validation: http://www.utdallas.edu/~chung/RE/Project2.pdf
- A Template for WRS Evolution: http://www.utdallas.edu/~chung/RE/WRS-template.rtf
- DHTML Scheduler Free Edition: http://www.dhtmlx.com/docs/products/dhtmlxScheduler/index.shtml
- S&A Systems Vehicle Activity Scheduler (VAS) Designed By Ramon Rivera
- PHP 5: http://php.net
- Prototype website (Hosted by Mike Grugel using Linux BlueHost Server):http://ramon.grugel.com/
- JavaScript, Json, Jquery, and AJAX Development Tools Designed By Ramon Rivera
- US Census Data, 2004, http://www.census.gov/epcd/www/smallbus.html

1.5 Project Overview

For any organization to function efficiently, personnel must be able schedule meetings without wasting vast amounts of time determining a time and location to fit everyone's schedule. This is a project plan describing the Web-based Meeting Scheduler (WMS), a program that will assist in automating the process of determining the best times for various participants to meet.

The project involves creating a scheduler which will allow users to initiate meetings and acquire information about potential meeting attendees' time preferences to find an optimal meeting time. WMS users will update their schedules with times they are unavailable as well as times they prefer to meet to help guide users who are initiating meeting to find the best available meeting time.

2. Positioning

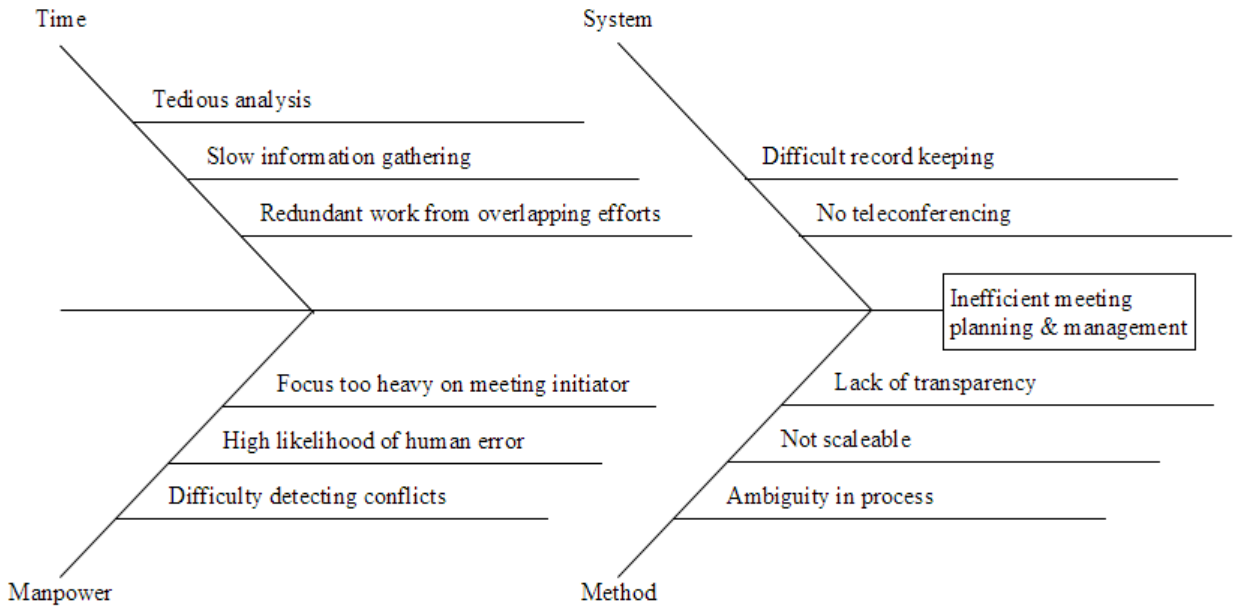
2.1 Business Opportunity

Communicating between different individuals and professionals has become a big issue on today's world. The difficulty has risen in trying to schedule meetings between different people because of hectic schedules, busy lives and different work schedules. This is a perfect opportunity to create a easy to use scheduling system that allows people to schedule meeting and resolve conflicts in an efficient visual interface.

2.2 Problem Statement

The problem of	scheduling meeting between participants with conflicting times

affects	the people needed to be involved in the meeting
the impact of which is	the meetings cannot happen because of conflicting circumstances between the participants that need to be involved in the meeting
a successful solution would be	a visual interface that allows participants to resolved the conflicts on a conflict matrix. The system would allow the participants involved in the meetings to modify their meeting preferences to satisfy and resolve an appropiate meeting time by using the visual conflict matrix. In addition, the people involved in the meeting can opt to be a virtual participant, thus resolving any conflicts by being present from a virtual location. The system would be available from a web location which would facilitate the participants involved in the meeting in updating their preferences at any time. The system would use email services to notify the participants involved in the meetings of any scheduling conflicts or changes made to the meeting preferences, such as location, time, etc.



2.3 Product Position Statement

For	professionals and individuals
Who	are in need of resolving conflicting meetings between involved participants.
The Web-Based Meeting System	is a software product hosted on a hardware web server.
That	will aid the meeting participants in resolving any

	conflicting meetings in an easy to use visual interface that displays the available meetings plus a conflict matrix that would quickly show the conflicts between participants.
Unlike	convoluted meeting schedulers that only show a list of meetings without the aid of a visual interface, which creates a very complicated process to attempt and resolve any possible conflicts.
Our product	offers a visual interface that cannot be matched by any competitor software. The system can display meetings in daily, weekly, or monthly views. In addition meetings are color coded to represent conflicts, due meetings or past meetings. Also, the system has a visual conflict matrix that uses a color spectrum to visually represent the strength of the meeting conflicts.

3. Stakeholder and User Descriptions

3.1 Market Demographics

The target market is mid-size companies with multiple offices/locations across the United States. As the number of employees increases, the difficulty of coordinating meetings grows. And, as the number of locations grows due to branch offices or telecommuting employees, the need for a distributed meeting scheduler system becomes increasingly importance. Since businesses with less than 20 employees can usually operate in an adhoc manner with little difficulty, a meeting scheduling system would not be critical. Since larger organizations are more likely to have a system in place and to rely on existing vendor relationships, this segment is better targeted once the software has achieved maturity. The small to mid-size company is the segment most likely to benefit from a distributed meeting scheduler system with the current feature set under development. The table below highlights the target market of 20 to 1000 employees which includes over 600,000 US businesses.

Business Size (Based on # Employees)	# FIrms	# Establishments	Avg # Establishments/Firm
1 to 4 employees	2,777,680	2,782,252	1.0
5 to 9 employees	1,043,448	1,055,937	1.0
10 to 19 employees	632,682	666,574	1.1
20 to 99 employees	526,355	692,677	1.3
100 to 499 employees	86,538	330,447	3.8
500 to 749 employees	5,695	66,305	11.6
750 to 999 employees	2,709	41,835	15.4
1,000 to 1,499 employees	2,828	57,479	20.3
1,500 to 2,499 employees	2,281	76,491	33.5
2,500 to 4,999 employees	1,739	106,893	61.5
5,000 to 9,999 employees	905	120,311	132.9

10,000 employees or more	890	587,168	659.7
TOTAL	**5,083,750**	**6,584,369**	**1.3**
Target Market, 20 to 1000 employees:	**621,297**	**1,131,264**	**1.8**

US Census Data, 2004, http://www.census.gov/epcd/www/smallbus.html

3.2 Stakeholder Summary

Name	Description	Responsibilities
OmniSoft	Customer. Works with System Analyst and Project manager to define product and oversee rollout	Contracts work to Team Awesome Pays for development Signs-off on artifacts and plans Coordinates acceptance testing
System Analyst	Works with stakeholders to gather needs and wants.	Leads and coordinates requirements elicitation and use-case modeling. Outlines domain, system environment, and software requirements.
Software Developer	Develops the software	Performs high-level design, low-level design, and implementation. Ensures design complies with requirements.
Project manager	Works with the System Analyst to correctly translate requests/needs into requirements to be used for design.	Monitors the project's progress and timeline. Implements and oversees the process model. Plans, manages and allocates resources. Shapes priorities and coordinates interaction with non-user stakeholders. Oversees creation, sign-off, and archiving of artifacts.
Test	Verifies the developed software	Verifies requirements through test of the software/system. Writes test cases, tests software, feedback to development and project management.
Maintenance	Maintains the develop software.	Input/feedback on artifacts to ensure the software is maintainable once released.

3.3 User Summary

Name	Description	Responsibilities	Stakeholder
Meeting Coordinator	Primary End User	Initiates and coordinates meetings. Prioritizes meeting participants. May operate on behalf of another employee (especially executive). Re-schedules meetings when needed.	System Analyst OmniSoft

Meeting Attendee	Primary End User	Uses software to communicate availability, resource needs, and location preferences. Uses software to accept/decline meetings.	System Analyst Omnisoft
IT Management	Decision-maker for purchasing business software	Makes software decisions for business. Accountable to the business. Assigns and manages resources for software support.	System Analyst, Business Manager
IT Team	Evaluator of software, influences software purchasing decisions	Installation of software throughout the business. First-line of support for users. Administrator of software.	System Analyst, Business Manager

3.4 User Environment

The number of users involved in a meeting will vary depending on the purpose of the meeting. The software is intended to make scheduling a meeting an efficient process, however the number of participants, schedules, and conflicts will ultimately dictate the time and complexity involved in scheduling a meeting.

The meeting coordinator is the primary user who has responsibility for completing the task of scheduling a meeting. Attendees will be entering personal schedules and preferences regularly, thereby limiting their involvement to accepting/declining a meeting invitation. Concerns or issues identified with use of the software will be escalated to the IT Team.

A user accesses the software across the internet using browsing software running on either a wireless or wire-line computer or computing device. The browser software must support javascript which includes: Firefox 3.5, Internet Explorer 8.0, Opera 10.10, Google Chrome 4.1.X, and Safari 4. Each user is required to have a valid UserID for access. The software administrator has the responsibility for managing UserIDs and password resets across the organization. Additionally, the user-interface is designed for ease of understanding and navigation.

3.5 Key Stakeholder Profiles

3.5.1 Meeting Coordinator

Representative	None
Description	A representative (secretary or manager) who uses the system to plan and initiate a meeting based on date, time and availability of resources.
Type	Expert user who is in management level position and has experience in handling meetings.

Responsibilities	Ensure that the meetings are planned at the best possible date, time and meeting location and initiated meetings are scheduled with minimum conflicts and with minimal interactions.
Success Criteria	Success is defined by the meeting initiator satisfaction and ease of continued use of the system and also in the ability to schedule meetings on a preferred date, location and should be simple, conflict resolution quick and with less number of negotiations.
Involvement	We will have internal members of our project team to help evaluate our design and guide our vision.
Deliverables	None
Comments / Issues	None

3.5.2 Meeting Attendee

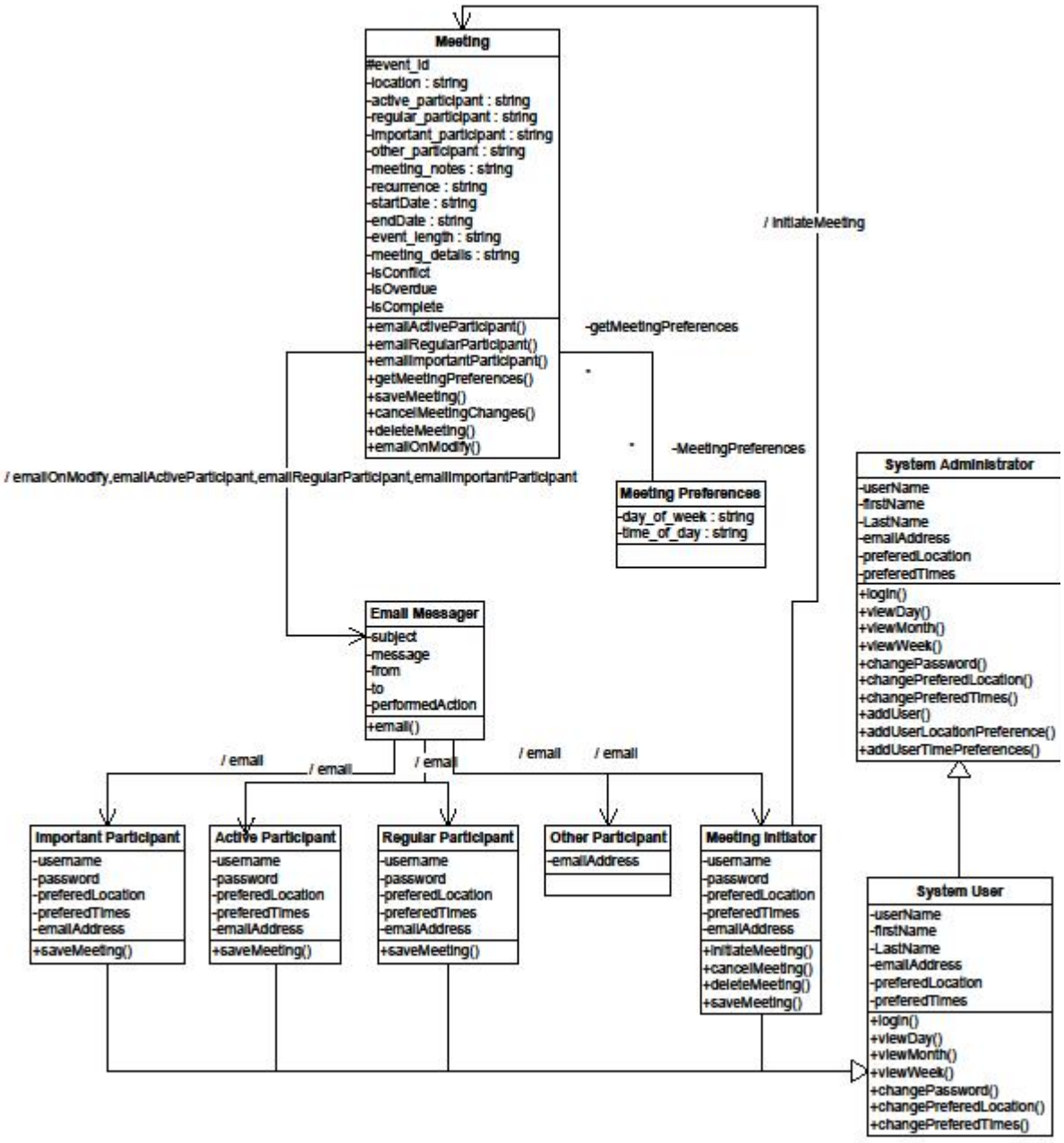
Representative	None
Description	A person who has been invited for a meeting and can accept or reject a meeting invite based on his availability.
Type	Casual user who has basic experience with web based applications.
Responsibilities	Ensure that they respond to all meeting invitations and inform the meeting coordinator of their preferred and exclusion sets well in advance and confirm attendance.
Success Criteria	Success is defined by the less number conflicts in meeting arrangements, uninterrupted use of the system and in the ability to accept a meeting request.
Involvement	We will have internal members of our project team to help evaluate our design and guide our vision.
Deliverables	None
Comments / Issues	None

3.6 Key Stakeholder or User Needs

Need	**Priority**	**Concerns**	**Current Solution**	**Proposed Solution**

Ease of scheduling meetings	High	To schedule meetings easily through a web based system	None	Develop Web based Meeting scheduler system
Resolve conflicts in date, time and location quickly and efficiently	High	To resolve the conflicts	None	Provide efficient conflict resolution technique
To select preferred meeting location and date	High	To manage convenient location and date	None	The meeting coordinator will select the best date based on preference set and location
Accessibility	High	Access to the system from any part of the world	None	Develop a Web based application which can be accessed on Internet without any special installation
Secured access	High	To manage user and meeting information	None	Provide user with userid and password by administrator for secured access of information
Usability	High	To develop simple and easy to use system by all kinds of users	None	Provide user friendly and help guided web based application

3.7 Design Class Diagram



3.8 Alternatives and Competition

- **Microsoft Outlook 2007:** Is the most popular and commonly used application for scheduling meetings in many organizations. We can send and receive text and picture messages between Office Outlook 2007 and any mobile phone. It automates time-consuming calendaring task.
- **IBM LotusNotes 7:** This software is also used by many organizations. Has the capability to process incoming calendar invitations automatically, even when there is a conflict. Be

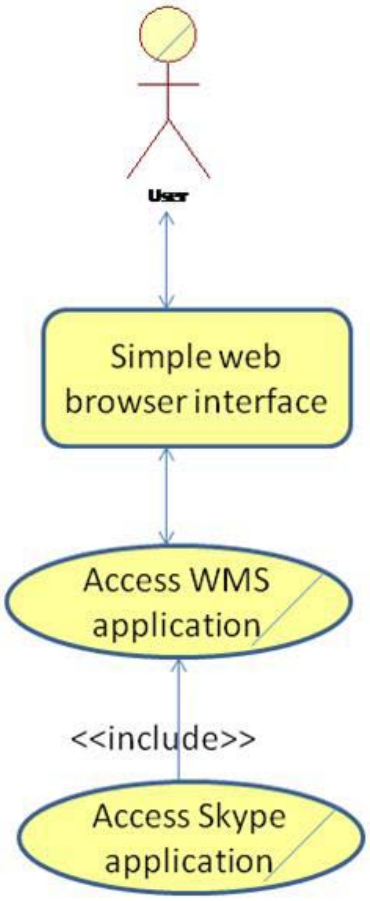
able to personalize the display of calendar invitations based on type (meetings, appointments, remainders, events) or invitee status(confirmed or tentatively accepted) with easy to use calendar filters.

- **Google Calendar:** This is a free web-based calendar used to schedule meetings. Schedules from other applications can be easily imported.
- **Office Tracker (Milum Corporation):** Office Tracker Scheduling Software lets us to create schedules and shared calendars for scheduling group meeting, conference rooms, send automated notifications to all involved, and track resource usage.
- **Apple iCal:** This is a powerful desktop calendar which runs on Mac OS X operating system. It tracks appointments and allows multiple calendar views to quickly identifies conflicts and free time. It is also integrated with MobileMe, so calendars can be shared and synced with PCs, iPhones, iPod touch over the Internet. It allows notification of upcoming events on screen, by email, SMS, or pager.

4.Product Overview

4.1 Product Perspective

Users would be able to access the Web-Based Meeting Scheduler (WMS) using the interface of the simple web browser to initiate meetings. They will also be able use the WMS to access Skype to conduct virtual meetings as well as record the audio and video of meetings.



4.2 Summary of Capabilities

1. System is accessed by Internet by using the user friendly GUI.
2. Meetings are initiated conveniently through clicking on a calendar interface.
3. The meeting scheduling control provides a comprehensive display of which times different attendees are available.
4. It supports the video conferencing and recording.
5. Dynamic conflict resolution of date, time and location for different meeting attendees

4.3 Assumptions and Dependencies

- The user's computer meets the minimum hardware and software requirements to run the WMS.
- The user has installed Skype before attempting to conduct virtual meetings or record meetings.
- Meeting initiator have the knowledge of who the invitees are
- Meeting scheduler system involves all the users of the business organization who are present in the database of the system.
- If a user is busy at some time he should add it in the meeting scheduler.

4.4 Cost and Pricing

Competing products currently in the market sell for $83.99 to $29.99.

Our product is competitive in comparisons to existing product in the market and provide with some additional features.

Price : $24.99

4.5 Licensing and Installation

Product is very generic and is supplied to customer on a license-basis. No installation support and maintenance of the product would be provided. Installation is very easy and product would be supplied with the user manual which will show the step by step installation procedure and how to use the system.

5. Product Features

5.1. Start software

The user needs to be able to start up the system remotely.

5.2 Shutdown software

The user needs to be able to shutdown the system gracefully remotely.

5.3 View status of system

The user needs to be able to view the status of the system gracefully remotely.

The following features relate to initiating a meeting:

5.4 Click a date on the calendar to initiate a meeting

5.5 Select the type of the meeting, either private or professional

5.6 Add important participants from available participants

5.6.1 Send messages to important participants
5.7 Add active participants from available participants
5.7.1 Send messages to active participants
5.8 Add regular participants from available participants
5.8.1 Send messages to regular participants
5.9 Select meeting location from available locations
5.10 Select meeting time

The following features relate to viewing the meeting calendar of the system
5.11 View the meeting calendar in day
5.12 View the meeting calendar in week
5.13 View the meeting calendar in month

The following features relate to update user profile
5.14 Edit user information
5.14.1 Edit user name
5.14.2 Edit email address
5.14.3 Edit password
5.15 Edit preferred meeting times
5.16 Edit unavailable times
5.17 Edit preferred meeting location

6. Constraints

6.1 Security

The WMS has security measures that are both standard and optional depending on the installation server. Unique user IDs allow access to user-specific portions of the site. No confidential information is stored on the server-side of the WMS. Additionally, HTTPS (Hypertext Transfer Protocol Secure) can be enabled on the server to encrypt traffic through the website to prevent additional security threats.

6.2 Usability

The WMS was designed first and foremost to be user friendly, allowing many options and available actions through your home page GUI. The options for creating a meeting are presented in an intuitive manner and can be accessed via the meeting dialog GUI.

6.3 Responsiveness

Responsiveness of the WMS will be primarily determined by the internet connection and server capabilities. The client will be limited mainly by their internet connection. As with any web based system, intermittent or bad connections can affect performance and responsiveness. The server limitations are much lower, requiring many more users than most medium-sized organizations have before additional additional considerations may be necessary.

6.4 Capacity

At current configuration, the WMS has a virtually 'unlimited' capacity and could easily handle hundreds to thousands of users and meetings before additional considerations may be necessary. They may include additional servers to load-balance the system.

6.5 Reusability
The WMS can be reused (rebranded) to service other institutions. This may include aesthetic redesign, however the core components of the meeting scheduler may remain intact.

7. Quality Ranges
None specified.

8. Precedence and Priority
The system must be available by April 2010.

9. Other Product Requirements

9.1 Applicable Standards
As with any web-based system, certain 'best practice' guidelines are involved to accomodate interoperability, usability and accessibility for users accross the web. The WMS was designed in PHP 5. World Wide Web Consortium (W3C) standards were used, including DOM, HTML, XHTML, CSS and others.

9.2 System Requirements
The WMS has low system requirements, needing only an internet connection and and web browser that supports javascript. (Tested with Firefox 3.5, Internet Explorer 8.0, Opera 10.10, Google Chrome 4.1.X and Safari 4)

The server-side requirements are also minimal, requiring only PHP and an SQL database.

9.3 Performance Requirements
The system must promptly react to user actions to create a responsive system. This is achieved by having efficient code and is aided (and limited) by the internet connection of the end user.

9.4 Environmental Requirements
The system assumes that the user is familiar with standard web-based navigation and and interaction. Additional documentation will be provided to help users unfamiliar with these interactions. Specific computer knowledge or programming experience is unnecessary for the end user.

10. Documentation Requirements

10.1 User Manual

The manual is electronic online documentation in two formats: video and text. This documentation will be contained on a website external to the WMS installation. The video documentation will be in conversational tutorial format, discussing how to perform common tasks in the meeting scheduler. The text documentation will contain a more formal item-by-item description of each button and feature of the system.

10.2 Online Help

A help button on the main meeting scheduler page links to the online manual.

10.3 Installation Guides, Configuration, and Read Me File

Administrator help will be provided in the online documentation, including installation and configuration instructions. The Readme will contain basic information on how to access the online documentation, in addition to last-minute notes or changes to the distribution of the WMS.

10.4 Labeling and Packaging

This product is distributed electronically, rather than through physical media, therefore has no packaging design.