Rose-Hulman Institute of Technology

University of Wisconsin–Madison | Department of Computer Sciences
Human-Computer Interaction Laboratory

Milestone 2

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Contents

1 Executive Summary

This document's purpose is to detail the participant scheduling system proposed by the Human-Computer Interaction Lab of Wisconsin-Madison. It is the first document describing this project, and contains information on the lab's needs, proposed features, and how the project will affect the lab. The project exists because the lab wishes to unify their schedule information and provide a simple, intuitive interface for prospective participants to sign up for experiments.

2 Introduction

The Human-Computer Interaction Lab at the University of Wisconsin-Madison wants a web-based system to better manage the scheduling of participants for their studies. These studies range from one-on-one experiments to group interactions, and many of them involve the robot used by the lab. Currently, each researcher arranges studies independently via email and is responsible for scheduling rooms, avoiding conflicts, and notifying participants of changes; unifying this information onto one system simplifies all of these tasks. To the client, the most important benefit of a unified system is the ability for participants to easily browse all available experiments, which is not possible over email. However, a variety of other functionality should be integrated into this utility to take advantage of the unity of information; most notable is recognizing room conflicts when scheduling studies, since the lab has only one robot and it cannot be moved.

3 Client Background

The client is the Human-Computer Interaction Lab at the University of Wisconsin-Madison. Their research focus is the on the way humans perceive computers, and how this perception influences their actions. The main goal is to learn about this interaction through making hypotheses, experimenting, analysing the data, and then publishing papers on the results. They draw the participants for their experiments from a wide range of people, usually ranging from 18-65 years of age and from diverse technical backgrounds. As such, any system they use must be designed for all levels of technical competency.

4 Current System

Each researcher has their own method of handling participant scheduling. For most the current system is to have the participants email the individual researcher and then that researcher records the time slot in some sort of excel spreadsheet. Other researchers have tried Google Calendar appointment slots; while this is a better system, not everyone uses it and the client believes it is too complex for most participants and some researchers. Addressing the lack of unified data and superfluous effort on the part of the participants is the primary goal of the project.

5 Product Overview

This section provides a high-level view of the product capabilities, interfaces to other applications, and system configurations.

5.1 Product perspective

The participant scheduling system will be a new product. It will be used to schedule experiments and participants in the Human-Computer Interaction Lab at the University of Wisconsin-Madison. The product

is independent and totally self-contained; it is not a component of a larger system.

5.2 Elevator Statement

For the researchers in the Human-Computer Interaction Lab at the University of Wisconsin-Madison who currently schedule experiments and participants with rudimentary tools such as pencil and paper, email, or Google Calendar, the participant scheduling system will be a web application that will streamline the lab's scheduling process. Unlike current solutions, this application will be the same for every researcher, so it will also be easier for participants to be a part of multiple experiments.

5.3 Summary of Capabilities

Here are the major benefits and features the product will provide.

Customer Benefit	Supporting Feature
List of participants for an experiment	Reports
Room availability (avoid conflicts)	Overall lab schedule
Simple sign up	Intuitive user interface
Track all experiments	Experiments manager
Access from anywhere at any time	Web application

5.4 Assumptions and Dependencies

- The participant scheduling system will be a web application.
- The server has the necessary operating system and software.
- There is no integration with any other system.
- There is no import of existing data.

5.5 Rough Estimate of the Cost

There is no monetary cost for this project, because the software development, as part of a college class, is free. Furthermore, the client will be provided with free servers through the University of Wisconsin-Madison for the finished product. The client will perform maintenance and management on their own.

6 Features

ID	Feature	Status	Priority	Effort	Risk	Stability	Target Release	Reason
1	Browse Experiment	Approved	Critical	Medium	Medium	Medium	1st	Lets experiments be advertised better and to display the experiments
2	Persistent Experiment Storage	Approved	Critical	Medium	Low	High	1st	Store experiment for the data to be web based.
3	Levels of Authentication	Approved	Useful	Medium	High	Medium	3rd	Have levels of administers, workers and participants in order to control privacy issues and other sensitive data
4	Participant Schedule Experiment	Approved	Critical	Medium	Medium	Medium	1st	Participant can schedule experiment slot
5	Filter Experiments	Approved	Useful	Medium	Low	High	2nd	Filter the experiments when browsing according to Time, Date, Payment, etc.
6	Experiment Participants	Approved	Important	Low	Low	High	2nd	View all of the participants by admins and workers only of individual experiments
7	Cancel Experiment Appointment	Approved	Useful	Medium	Medium	Medium	3rd	Cancel participant scheduled appointment
8	Add Experiment	Approved	Important	Medium	Medium	Medium	2nd	Add experiment from admins view
9	Modify Experiment	Approved	Important	Medium	Medium	Medium	2nd	Modify or Edit experiment from admins view
10	Notify Participant when Creating Appointment	Approved	Useful	Medium	Low	High	4th	Send an email reminding participants of participation in an experiment
11	Notify Participant Appointment Reminder	Approved	Useful	Medium	Low	High	4th	Send an email or text reminding participants for their experiments
12	Notify Participant Appointment Cancellation Reminder	Approved	Useful	Medium	Low	High	4th	Send an email or text reminding/telling participants of cancellation of their experiments
13	Export Experiment Participant List	Approved	Useful	High	Low	High	4th	Reports on experiments scheduled with an option for Individual experiments reports
14	All Experiments Calendar	Approved	Useful	Medium	Low	Low	4th	Have an overall schedule viewer
15	Remove Experiments	Approved	Important	Low	Low	High	4th	Allow for workers or administers to remove schedules
16	Tracking of Consent Payment Forms	Rejected	Useful	Medium	Low	Medium	N/A	Allow for workers to check off participants when filling out consent/payment forms
17	User Report	Rejected	Useful	Medium	Low	Medium	N/A	Allow participants to have a report on new experiments
18	Accounts	Approved	Critical	High	Low	Medium	N/A	Accounts for participant
19	Prevent Scheduling Conflicts (Participant)	Approved	Useful	High	Low	Medium	N/A	Prevent participants from scheduling 2 experiments at the same time
20	Prevent Scheduling Conflicts (Administer)	Approved	Useful	High	Low	Medium	N/A	Prevent 2 rooms from being scheduled at the same time
21	Install Scripts	Proposed	Useful	High	Low	Low	TBD	Install scripts for installation
22	Documentation for Maintenance and User	Approved	Useful	High	High	Low	Ongoing	Documentation

The Browse Experiments feature and Persistent Experiment Storage both had a Priority of Critical since they both must be implemented for even a very basic version of the scheduling System. The effort on both was a medium as with a team of two, there would be a manageable amount of work. Browse Experiments has a stability of medium since it is up for change upon the client seeing the UI. Persistent Experiment Storage has a stability of high since once implemented has little chance of being changed.

Participant Schedule Experiment has a priority of critical since the participants must be able to sign themselves up for an experiment for the project to be successful. Again, the effort is medium since with two people the work would be manageable. The risk is high on this feature, since the success of the project has a dependence on the feature. The stability would be medium since the steps are unlikely to change, but the UI could easily change.

Levels of Authentication is a useful priority because it would not be necessary for there to be an actual Admin since the users trust each other, but this would be a nice feature. The effort and stability are medium since the feature may change some, but only smaller parts of the feature, while still being a very manageable task.

Filter Experiments has a priority of useful, since it might only apply to users in certain situations. Filer Experiments and Experiment Participants have a low risk, since the project does not depend on their success. They both also have a stability of high, since changes are unlikely to happen. The effort on Filter Experiments is medium, since there are some areas of the feature, such as what to filter by, that have not been established. The effort on Experiment Participants is low since a simple SQL query will do most of the job.

Cancel Experiment Appointment, Modify Experiment, and Add Experiment get and effort of Medium, since most deal with SQL and some logic on the back end. They also have a risk of medium, since a mistake while implementing these features could create a difficult to find bug elsewhere. The stability is medium, since parts of the database could change slightly.

Notify Participant When Creating Appointment, Notify Participant Appointment Reminder, and Notify Participant Appointment Cancellation Reminder all have a priority of useful since they would be nice to have, but are not vital to the projects success. They all have an effort of medium since they involve a persons email, but could be reduced to low, depending of the framework used. Their risk is low, since a failure here creates no problems else where in the project, nor does a mistake spread else where in the project. The stability is high on these since they are unlikely to change.

User Information Form has a priority of critical since the user must enter their information when scheduling for an experiment. The effort is low since this will be a simple UI, but the Risk is High since the User information must be stored for the experiment. The stability is high since all that is needed is name, phone number, and email.

Export Experiment Participant List is a useful feature, that has a high effort due to formatting of the report. The risk is low though, since the feature is not critical in the release of the product. Stability is high due to the feature being very specific.

An All Experiments Calendar would be useful for the future participants. The effort is medium because it would be an extension of the Browse Experiments feature.

Remove Experiments has a priority of Important, since, although rare, experiments maybe cancelled. The effort is low since most of it will be taken care with an SQL query. Also, a stability of high is given because of how specific the feature is described.

Accounts, Prevent Scheduling Confilicts for the Participant, and Prevent Scheduling Conflicts for the Administer all have a priority of useful, except for Accounts which Critical, since the other two features mentioned rely upon the Accounts along with cancellation of the experiment slots. The effort is high for all the features due to the logic needed when implementing the features.

Tracking of Constent Payment Forms and User Report have all be rejected, since the client does not need theses features.

Documentation and Install scripts are both useful priority. The effort will be high, since there is complexity associated with the Install scripts and Documentation is difficult to keep up to date. The stability would be low since the definition could change.

Items 1, 8, 15, 18, and 21 will be assigned to Kevin Risden. Items 3, 4, 10, 11, and 12 will be assigned to Samad Jawid. Items 6, 9,14 and 20 will be assigned to Chris Gropp. Items 2, 5, 7, 13 and 19 will be assigned to Trey Cahill. The entire team will work on item 22.

7 Use Cases

8 Data Flow Diagrams

9 Storyboard

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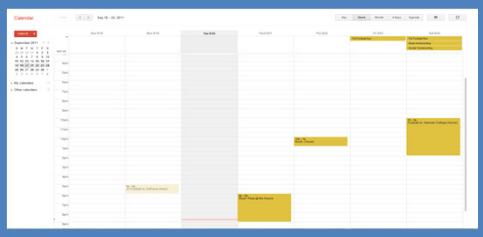
Browse Experiments



Researcher Log In

Sign up Information for Experiment X

Name:
Cell Phone:
Email:

By clicking this I have agreed that I meet all qualifications

Submit

Experiment X

- Qualification #1
- Qualification #2
- Qualification #3
- Qualification #4
- Qualification #5

Notes:

Dates
- Date 1
  - Time1
  - Time2
  - Time3
- Date 2
  - Time1
  - Time2
  - Time3

This Experiment is ran by <Researcher1, Researcher2,…,Researchern>

Sign up for this Experiment

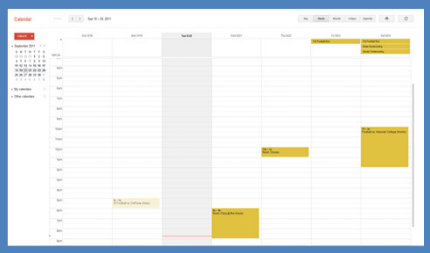
Researcher Log In

Username:
Password:

Log In

Experiments of <Username>

Filters
- Date
- Room
- Etc
- Etc
- …



Create New Experiment

Experiments of <Username>

Experiment	Date	Room
Robot Stuff	5/5	F 217
UI Stuff	5/6	F 322
10001010110	5/10	O 231

Create New Experiment

Experiment X

Save

Qualifications:
- Age
- Language
- Etc
- etc

Description/Notes

Participant List

Name	Cell Phone	Date/Time	Email
Bill Bob	(555)555555	5/5 – 14:00	bob@ma.com
Sparks Mcgee	(403)6185546	5/6 – 13:30	sparks@ma.com
Shane Jermey	(209)4723882	5/5 – 13:30	jermy@ma.com

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Browse Experiments

Experiment Name	Date – Times	Notes
Robot Stuff	5/5 – 13:00	Etf
Less Robot Stuff	5/5 – 14:00	Etc
More Robot Stuff	5/6 – 12:00	Etc
UI	5/6 – 9:00	Etc
Dan Guiney	5/8 – 20:00	Etc
Computer Runs	5/9 – 15:00	etc

Researcher Log In

10 References

[1] University of Wisconsin-Madison. Human-Computer Interaction Laboratory, 2010.

11 Appendix

12 Glossary

13 Index