

**67-475 Information Systems Applications**  
**Carnegie Mellon University**  
**MIWatch – Milestone 2**

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## **Table of Contents**

<b>1. Executive Summary</b>	<b>3</b>
<b>2. Draft 2 of Client Agreement</b>	<b>4</b>
<b>3. Updated Documentation</b>	<b>6</b>
3.1 MIWatch Project Vision	6
3.2 Statement of Nonfunctional Requirements	8
3.3 Preliminary Technical Documentation xxx	8
<b>4. Review of system requirements, design or prototype</b>	<b>9</b>
<b>5. Test Plan</b>	<b>9</b>
<b>6. Quality Assurance</b>	<b>9</b>
<b>7. Detailed Project Implementation Plan for next Milestone</b>	<b>10</b>
<b>8. Project Management</b>	<b>10</b>
<b>9. Appendix</b>	<b>11</b>

## 1. Executive Summary

MIWatch is an online news source for persons affected by mental illness(es) including, but not limited to patients, family members, service recipients, clinicians, advocates, and members of the press. Site features enable users an easy to navigate interface that allows searches to be conducted by date, author, and a unique search engine of the archives. The end-goal of MIWatch is to be an information hub about mental health issues.

Site improvement is currently focused on mapping of physical locations site users can go for mental illness resources. Google maps will be used, but with custom data points specified by the client. In the few meeting discussions held with the clients, it was made a point that location searches (for now limited to searching by zip code) will not return private practices and/or institutions. Data parameters thus far is basic information for each location, ie. name of institution, what they treat, address, phone number, insurance, etc.. A complete list of relevant search fields is in the process of being compiled.

Following implementation of the mapping functionality, site redesign will be done for easier navigation, in addition to encouraging user interaction and participation. The purpose of the site is to create a feel of a give and take between the MIWatch and the user, as well as among users of the site. To increase user participation in the site content, more polls and blogs will be implemented to provide an area where users can suggest stories to post as well as their own experiences. There is also a need for more timely updates of information, keeping resources as up-to-date as possible. The team is looking to upgrade to Web 2.0 features for Flash, video, audio, web television and photos to enhance the sharing of information.

Possible competition for MIWatch include sites such as Network of Care, which covers mental health help locations by region similar to the mapping functionality MIWatch is looking to offer. Another site, mentalhelp.net offers the informational articles that MIWatch offers. The team will be researching these sites as well as additional other mental help sites as comparison and ideas for MIWatch.

## 2. Draft 2 of Client Agreement

### Client Agreement

Project Name: MIWatch

Client: Phyllis Vine

Team Members: Karen Chen, Paul Dille, Hannah Leung, Chase Midler

Advisor: Raja Sooriamurthi

#### Problem:

Many people are unfamiliar with mental health services and feel overwhelmed when seeking such services. Some people who are currently enrolled in a program may need to move to a new area where he/she needs to seek out new forms of service. When people have a similar problem with dining, they can easily refer to Zagat for recommendations. However, this is not available for mental health services. Thus, MIWatch seeks to provide references for those who may be looking for mental services, based on location and types of services provided.

#### Solution:

The team will set up a map based on Google Maps on the website with pointers based on a personalized database using information given by the client about mental services in a designated area. Additional information about each location may include: insurance policy, types of services, and comments. Additional features include search based on location, insurance policy, services, and commenting. Incorporating a map will mean redesigning the website, allowing smoother navigation and better organized information.

#### Requirements include:

- Database containing services information based on location
- Google Map incorporated into website
- Search functions and filters
- Widgets to display YouTube videos
- User feedback- Blogs, Comments, Voting
- Map navigation(scrolling, zooming, displays information correctly)
- Compatibility on Mac OS, Windows, and Linux
- Loads map and pointers reliably

#### Deliverable Dates and Components

October 14, 2009

- Working test site of map

October 21, 2009 - Deliverable 2

- Documentation
- List of known defects
- Survey for feedback
- Software

November 9, 2009- Deliverable 3

- Documentation
- Training
- List of known defects
- Software

December 7, 2009 - Deliverable 4

- Documentation
- Training for website
- List of know defects
- Software

Client Responsibilities

The client is responsible for:

- October - Seminar on Mental Health Services
- October 19 – Set up meeting with potential users to discuss requirements and expectations for map functionality
- October 21 - First set of locations for map and information needed for each location(update as needed)
- Keeping in contact with the team
- Providing feedback and answer questions as needed
- Before Deliverable 2, Deliverable 3, and Deliverable 4: at least 5 potential users who can test the system and provide feedback(5 testers for each deliverable can be the same)
- Final Presentation: Client be present for presentation

Acceptance Criteria

- All software solution provided by the team (web site, databases, networking components, etc.) has been installed, and is running properly, in the client's environment, on the client's designated machines.
- All administrative, technical, and user documentation has been received by the client.
- Archival copy of project has been given to client (CD, DVD, all documentation, etc.) along with all necessary instructions.
- All key functionality (A level use cases) are fully implemented and work as expected. No key functionality is missing, incomplete, or nonfunctioning. Test cases have been run to verify implementation.
  - o Google maps implemented according to specifications. Locations shown for searched zip codes are limited to data points specified by client
  - o Redesign/reorganization of webpage as specified and approved by client
  - o Implementation of user-participation elements, such as polls, blogs
- All key nonfunctional requirements have been satisfied.
- A list of known defects has been received by the client.
- Training of client personnel has been completed.

Warranty

Any intellectual property furnished pursuant to this agreement is furnished on an "as is" basis. Karen Chen, Paul Dille, Hannah Leung, Chase Midler and Carnegie Mellon University make no warranties of any kind, either express or implied, as to any matter, including, but not limited to, warranty of fitness for purpose, merchantability, exclusivity or results obtained from use; nor shall either party hereto be liable to the other for indirect, special, or consequential damages, such as loss of profits or inability to use.

Client Signature: \_\_\_\_\_ Client Signature (print): \_\_\_\_\_

Member Signatures: \_\_\_\_\_ Member Signatures (print): \_\_\_\_\_

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Advisor Signature: \_\_\_\_\_ Advisor Signature (print) \_\_\_\_\_

### 3. Updated Documentation

#### 3.1 MIWatch Project Vision

##### Introduction:

The purpose of this document is to collect, analyze, and define high-level needs and features for MIWatch. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist. The details of how MIWatch fulfills these needs are detailed in the supplementary specifications.

##### References:

Phyllis Vine	- Executive Editor of MIWatch
Chad Everett	- Technical Lead of MIWatch
Kenneth Thompson	- Medical Director, Center for Mental Health Services

##### Problem Statement:

The problem of	identifying where mental health centers are while showing the easiest route to get there
affects	mental illness persons
the impact of which is	mental illness persons not knowing how to get to mental health facilities to get help with problems
a successful solution would be	a web based mapping system that shows where mental health facilities are based on zip codes with directions available along with public transportation options listed.

##### Product Position Statement:

For	mental health persons
who	wish to find mental health institutions in a certain zip code
the MIWatch System	is a web application that grabs information from a database to populate a mapping system to show where mental health institutions are and how to get there
that	will help mental health persons become more knowledgeable of where mental health institutions are
unlike	Google maps
our product	will provide a customized repository of only mental health institutes based on certain search criteria

##### Stakeholder and User Descriptions:

##### Stakeholder Summary

Name	Description	Responsibilities
MIWatch	Company that provides mental health information.	Provide information and host site.
Data Collectors	Individuals who collect information about mental health institutions,	Put information into database form for use of plotting maps.

#### User Summary

Name	Description	Responsibilities
System Administrator	Person who manages the technical aspects of the system.	Keep site running properly and remove any profane comments.
Mental Health Persons	Target group of the system that information is being provided for.	Make sure that MI Watch knows what would be helpful for them and suggest improvements to be made.
Journalists	Persons who write articles on the site	Keep writing new, informative articles to the site.

#### User Environment:

Number of people involved in completing the task? Is this changing?

The number of individuals it would take to complete a task is two to three. A journalist must post a new article in order for the mental health person to read the article. The system administrator should make sure that any comments posted by users on the articles are not profane. The mental health persons should also only need to look up the locations of mental health institutes without other users needing to interact.

How long is a task cycle? Amount of time spent in each activity? Is this changing?

A task cycle is very variable. Writing an article can take much time. Posting the article after it is written should take no longer than one minute 95% of the time. For users to browse articles or look up mental health locations, this should be as quick as the user can enter in the information. Redirecting to the new pages or viewing the maps should be quick to refresh, no longer than ten seconds on a DSL connections 95% of the time.

Any unique environmental constraints: mobile, outdoors, in flight, and so on?

The only environmental constraints would be the user would have to have a computer and internet access ready in order to use the system. The system is not developed for the iPhone or other mobile devices, but it can still be easily accessed using the web browsing platforms on the mobile devices.

Which system platforms are in use today? Future platforms?

System platforms in use today are Windows, Macintosh, Linux, UNIX, Ubuntu, etc. Future platforms could possibly be Google.

What other applications are in use? Does your application need to integrate with them?

Other applications in use would be a common web browser, servers, database system, and the Google API. Being able to integrate with the Google API is key to the success of the project.

#### Summary of Key Stakeholder or User Needs:

Need	Priority	Concerns	Current Solution	Proposed Solutions
Database of Mental Health Institutions Based on Zip Codes	1	The sheer amount of data that would be needed to be gathered and what format to put it in.	Google maps (defining fields and collecting data)	Create a huge centralized repository of purely mental health institutions information and use different methods of displaying this information.

Map of Mental Health Institutions	1	Working with Google API, translating from PHP to rails	Google maps	Using Google maps and rails plug-ins to build a customizable mapping system of mental health institutions.
Site redesigns	2	Minimal PHP knowledge	Completed translation	Translated PHP code to Ruby on Rails

Product Features:            Display map based on zip code entered  
                                       Allow customization of search parameters

### **3.2 Statement of Nonfunctional Requirements**

MIWatch's map system will make use of the Google Maps API and thus be subject to a few constraints. The first is that locations, that are not already stored locally, will have to be looked up via Google and subject to whatever latency and downtime Google is currently experiencing. This should not be a problem, however, since Google is an extremely reliable source and any latency or downtime will surely be more likely on MIWatch's end than with Google. Another constraint on the current setup of the mapping system is that Google will only allow 500,000 map loads a day. This will most likely not be a concern as this is extremely high load and not typical for a site like MIWatch. However, should this become a concern, all that is required is to submit a form to Google explaining the need and the limit will be removed.

The mapping system for MIWatch will be written in Ruby on Rails, making use of the Google Maps API. Both Ruby and Rails work under Mac OS, Windows, and Linux, so issues with Operating System incompatibilities are not a concern. However, some deployment software will be required to get the mapping system accessible on the Internet. Several great pieces of software exist, one of which is called Phusion Passenger and we will be suggesting it to the client. This piece of software requires either a Linux or Mac Operating System to run under. The rest of the site not part of the mapping system will be a combination of PHP and HTML and requires no special attention.

Security is not a major concern for MIWatch as no personal information (no user accounts are needed) is being stored and all of the information being provided is already publically known.

Our client has one or more individuals working for them that will be available as support to the system once our system has been deployed. We expect our system to require minimal maintenance once it has gone online. The Ruby on Rails deployment software recommended above requires little attention and if a problem does occur, there is extensive documentation and support from the developers available. The rest of the site will require about the same amount of maintenance and attention that it is getting in its current state. The skills required to maintain this system are typical of any IT individual working in a web development environment. This knowledge includes an understanding of HTML, database management systems (like MySQL), object orientated programming languages (like PHP and Ruby), and web server software (like Apache).

### **3.3 Preliminary Technical Documentation**

Translated PHP code of mapping functionality passed to the team to Ruby on Rails. Currently working on updating Ruby and setting up Ruby on Rails compatibility with MIWatch's host, LivingDot, which is needed to be able to integrate map with existing MIWatch site. Currently installed on MIWatch's server is version 1.8.5, whereas the team needs at least Ruby 1.8.6 and Rails 2.3.2 installed for it to work with our project.



#### **4. Review of system requirements, design or prototype**

Acknowledging that early feedback on the scope and development of a project is critical, the team has gone through steps to ensure that progress will not be halted on this front. Designing a Google map interface through the ruby on rails framework was needed by the client in order for users of the system to find mental health facilities for specific purposes near them. Using the Google API, a user can currently search for mental health facilities near their zip code and find directions to get there from a given location.

The interface of the mapping system is simple to use. There is a box to enter a zip code, a map, and two check boxes for options of mental health. As of now, the design needs to change to explain more of what needs to be done on this page. Having problems getting server access from the client, we have not been able to get a review of how they like the mapping system. As such, fine-tuning the details of how this map should be displayed is difficult. We are in the process of an intermittent solution that allows one of our group members to act as a server for the client to connect to in order to view the site. Focusing on the need of the client to view this system, the team has done as much as we can in order to make online viewing possible due to server access permission being denied.

As far as the website redesign of MI Watch goes, we have currently received ftp access to view the html of their homepage. This is not particularly helpful, and the group needs to be able to see more of the code in order to decipher how we can build in on top of the site, while not editing the live version, the revisions needed by the client.

As soon as permissions are allowed, the team will work with MI Watch closely to have their system redesigns accomplished as exactly as possible and discuss possible future revisions.

#### **5. Test Plan**

The current test plan following initial approval by Phyllis Vine is to have a working map published that future potential users can view and use. A follow-up survey will be sent (via online and/or paper mail) for users to answer preset questions as well as provide their own feedback. This will allow the team to gain insight into how users are reacting to the map functionality and find the potential weak/strong points. Some questions planned:

1. Ease of use (rate 1 to 10, 1 being easiest, 10 being hardest.)
2. Look and feel (rate 1 to 10, 1 being great, 10 being bad)
3. Please list the maps options you used and found useful.
4. Please list the mapping options you found unnecessary.
5. Any other comments.

#### **6. Quality Assurance**

Since the team has not delved into development too intensely yet, defects are minimal. One small defect with the map so far is that it does not display the same across users, even if using the same browser. This is a low risk defect and is not likely to affect the value of the project.

Project metrics include both technical and non-technical evaluations of the system. Technical reviews will include testing of functionality based on a set procedure determined by the team conducted throughout the rest of the project timeline. Defects such as the one mentioned about will be reported and addressed as soon as possible. Non-technical evaluation of the system will be received from the client and through running user tests. Evaluation of the design of the map and site will be the most important factors. To evaluate client satisfaction, the team will

hold regular conferences with the client to communicate current progress and future plans. Standardized user tests which evaluates design, navigation, and gain comments from users will be conducted as soon as basic redesign is implemented and will be tested as often as possible. The users will mostly be found through recommendations of the client. Other possible testers might be found by the team.

## **7. Detailed Project Implementation Plan for next Milestone**

- Revise site design as necessary
- Contact Phyllis regarding site design
- Begin redesigning site (coding) if Phyllis approves of new design
- Conference call with others involved in the project
- Continue map implementation
- Add new locations on map
- Add new search functions (search by city, radius?)
- Add parameters for map locations as needed
- Testing on map
- Midterm presentation
- Gather feedback from presentation and add tasks as necessary

## **8. Success Measures (in December)**

- Integration of Map with existing site
- Database updated, duplicates removed, consistent data
- Filtering abilities applied to map
- Simple redesign of current site, streamlining information, more prominent display of map.

## **8. Project Management**

There are no significant changes in feasibility, difficulty, and expected effort. Overall, communication has continued to be an issue, especially with new members introduced to the project. This introduced some additional complexity and changes into the project that was previously not expected. One of these differences was gaining access to source code of MIWatch.org. Rather than gaining access to all source code, the system's original implementer of the system only agreed giving the team access through FTP, where the team has access to implement new design for MIWatch.org. In addition, the feasibility of using Ruby on Rails was clarified during this phase after some discussion. Since Ruby is available via the host LivingDot.com, adding Rails functionality would be feasible.

Slight slippage in expected progress regarding site redesigning was experienced during this phase. Client expectations were misunderstood and new wireframes need to be created and approved by the client. However, the team expects that by the next milestone, design will be finalized for the project and placement of the map will be decided, regardless of actual imbedding success/feasibility.

Overall risk has not changed as time management, technical failure, client communication, and testing/usability continue to be risks. Risk has reduced due to working over the FTP protocol and successful conversion of old map from PHP to Ruby on Rails. Although risk decreases with the use of the FTP protocol, value expected from this project also decreases since newly implemented functions and design may not be deployed. Further information with the client regarding sustainability of this project will be discussed.

## 9. Appendix

### Appendix A : Item List for Service Map

*The following survey was sent by Phyllis Vine to various users of and contributors to the map functionality of the MIWatch site to better understand what is needed.*

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Each of these is numbered in no particular order. Please list your preferences by item number and we'll do the tabs.

#### Services:

- (1) services by age: child, adolescent-teen, transition, adult, geriatric.
- (2) category (eg. mental health services, substance abuse services, suicide prevention programs,)
- (3) programs offered (group; individual; ICM; CBT; DBT; individual; ACT teams; telephone/computer sessions)
- (4) payment types (private insurance, public insurance, clinic, non-profit resource; managed care, HMO)
- (5) provider training: Consumer outreach, MD., PhD., Peer-consumer specialist, social worker.
- (6) Inclusion of administrative numbers (not just clinical service providers)
- (7) Languages spoken

#### Web-based features

- (8) Feedback and comments: (eg: this place no longer takes appts; the doctors are great but the receptionists are rude; the waits are too long; everybody is seen within 15 minutes of appt;)
- (9) Wikis so visitors can start their own conversation;
- (10) Real time mash-ups of information when updated at original.
- (11) Hyperlink to agency
- (12) mailbox so user can keep a list of the agencies/calls of interest without having to do the search all over.

What would you like to see that we didn't enumerate? Please specify in your reply.

## Appendix B : Mapping update

*Follow-up email from Phyllis Vine for mapping requirements after meeting with users and map data point contributors. Clarifies what is needed from the map.*

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Let me start by saying you should be pleased to know how enthusiastically the board spoke last night about the project and the description of our meeting. From all of them, a thank you and an eagerness to see next steps.

Let me break down below into three categories:

- a) Data points;
- b) People/places --tba
- c) Next Steps – tba

As I said when we spoke, there is a fairly consistent agreement about priorities for data points. Some people had additional information they would like to see included. I realize that not all of this will be possible, but rather than delete prematurely, I'll include it all in the consolidation below. I'm using red to include what they've said or written

- (1) Services by age or gender: child, adolescent teen, transition, adult, geriatric, women's services, LGBT.
- (2) category (eg. mental health services, substance abuse services, suicide prevention programs, hours, language competencies) – note language is now embedded here rather than its own category.
- (3) programs offered (group; individual; ICM; CBT; DBT; individual; ACT teams; telephone/computer sessions; psychosocial rehab; voc rehab; supported education; women and trauma; recovery oriented wellness )
- (4) payment types (private insurance, public insurance, clinic, non profit resource; managed care, HMO. Here someone suggested that instead of the above, we list insurance providers (i.e.,Magellan, UnitedHealth, etc. including Medicaid and Medicare)
- (5) feedback box for user comments
- (6) Mail box (Jay rightly calls this a "follow up list –same purpose, different name)

That consolidates what's easy to consolidate. I'm also attaching a couple of memos from Jay Yudoff who, as I mentioned, understands mental health services as well as information systems (and much more in the latter than I could fathom).

I also want to make sure the program can update from the original sources when they do. Some of the organizations make changes/corrections periodically, others less often. But to counteract the problems of obsolescence, I think we need to make our work take real time changes into account.