

# **Quantifier Web Portal**

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Rev. 1.1

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## **Introduction**

This document details the requirements and execution plan of the Quantifier Web Portal. It will detail the problem presented as well as a detailed solution and execution plan to the problem.

## **Problem Statement**

The TIST (The Intentional Small Group Tree Planting) program helps subsistence farmers in poorer countries plant trees to help sustain their community and reverse deforestation. The current method of information delivery returns the entire data set and does not contain any useful tools for filtering results. The users of TIST's data have a very slow and expensive Internet connection. As the data set grows, it becomes more difficult and more costly for the users to receive data relevant to them.

## **Solution Statement**

The proposed solution is to create an easily accessible application that will allow its users to attain pertinent and relative information in a straightforward manner. For this project, there is a large data set that contains information on the location, count, condition, and other information for the program's trees. It is necessary for this application to allow its users to only obtain information from this data set that is relative to the user. The application must also be easily accessible from anywhere in the world. To solve this problem the application will interface with a web portal that will be available to anyone with an Internet connection. Since this application may be used globally where users may know English as a second language or not at all the solution must include capabilities for translation and/or an interface that does not require written instruction.

## ***Features***

- Web accessible interface
- Personalized content
- Multi-lingual
- Relevant data sets per user
- Administrative control

## ***Technical***

The application will be implemented in PHP and will interface with a MySQL database. This will allow users to access the application through a web portal and send/receive data. The application will consist of several modules:

### **1. Authentication Module**

Each user will be required to login with a designated user id and password. This will allow for the application to know the location and other information of the user when requesting data.

**2. Translation Module**

This will be a server-side module that will translate text to the user's country of origin.

**3. Administrator Control Module**

Administrator's will be able to add/edit/remove accounts, reassign passwords, edit download selections and assign project areas to users.

**4. Download Management Module**

This module will allow users to select what areas to download.

**5. Advanced Project View Module**

This module would display advanced information about specific areas in order to inform the user on the best areas to download.

**6. Upload Review Module**

This module would provide users with information about previous uploads.

**7. Instructions Module**

This module would provide detailed instructions on how to use each feature of the web portal.

**8. Progress Report Module**

This module would display information about previous work done by the user.

## Requirements and Functional Spec

### *Functional Specification*

- Authentication
  - Request Credentials if not logged in
    - On every page verify that the user is logged in, if not, redirect to a authentication page
  - Verify Credentials against database
  - Allow modification of users by users with sufficient rights (Administrative Control)
  - Additional per user information stored and utilized
    - Handheld ID
    - Type of the handheld device
    - Two or more quantifiers
    - Country of device

#### **Use Case 1: User Logs Into Web Portal**

**Description:** A Quantifier opens a web browser and enters the web portals address. He/she then wants to log into the web portal.

**Actors:** Quantifier, a typical user of the web portal.

**Goals:** To log into the web portal.

**Basic Flow:**

- a. Quantifier opens web browser and enters the web portals address into the address bar.
- b. Quantifier will be redirected to an authentication page where the user can enter a user id and a password.
- c. Quantifier enters his/her information into the authentication page and clicks the login button.
- d. Quantifier is redirected to their home page and is now logged into the web portal.

**Alternate Flow: Quantifier cannot connect to the Internet**

- e. Quantifier opens web browser and cannot connect to the Internet.
- f. Quantifier can contact the administrator to consult the problem.

**Alternate Flow: Quantifier enters bad username/password**

- g. Quantifier enters their login information and is informed it is invalid.
- h. Quantifier can try to correct their login information and re-enter.
- i. If the problem persists there will be a link to contact the web portal's administrator with information about the error.

## **Use Case 2: Administrator Logs Into Web Portal**

**Description:** An administrator opens a web browser and enters the web portals address. He/she then wants to log into the web portal.

**Actors:** Administrator of the web portal.

**Goals:** To log into the web portal.

**Basic Flow:**

- j. Administrator opens web browser and enters the web portals address into the address bar.
- k. Administrator will be redirected to an authentication page where the user can enter a user id and a password.
- l. Administrator enters his/her information into the authentication page and clicks the login button.
- m. Administrator is redirected to the administrator page.
- n. Alternate Flow: Administrator enters bad username/password
- o. Administrator enters their login information and is informed it is invalid.
- p. Administrator can try to correct their login information and re-enter.
- q. If the problem persists the administrator can correct the problem manually on the web portal's server.

- Retrieving Data
  - Initially create a data structure that defines what is needed to be downloaded
  - Potentially create a method of actually downloading this information to the palm device
  - In addition have a method of displaying current download options selected
  - Show what information is required and optional related to a given project area

- Show basic information directly related to a project area, to determine if download is required
- Potentially show advanced information about project areas as well
  - The group members assigned to the project area
  - Certain actual data, such as tree counts
  - Display of GPS tract plots
  - Last quantification date

#### **Use Case 1: User Requests Data**

**Description:** A Quantifier is logged into the web portal and requests data.

**Actors:** Quantifier, a typical user of the web portal.

**Goals:** To retrieve data relevant to the user.

**Basic Flow:**

- r. Quantifier selects the download management module.
- s. Quantifier is taken to the download management page.
- t. Quantifier selects what data to download as well as any user relevant information and clicks the submit button.
- u. Data is returned to Quantifier in a new page in a human readable format.

- Administrative Control
  - Maintenance of the authentication credentials and user information
    - Add/Delete accounts
    - Change user passwords
    - Enable/Disable accounts
  - Edit download selections for users
  - Assign mandatory project areas to be downloaded on a per user basis

#### **Use Case 1: Administrator Adds a New User**

**Description:** An administrator is logged into the web portal and wants to add a new user.

**Goals:** To add a new user.

**Basic Flow:**

- v. Administrator clicks the option to add a new user.
- w. Administrator enters the new users information and clicks submit.
- x. Administrator is informed the user was added successfully.

**Alternate Flow: User is not added successfully**

- y. Administrator is informed of any errors in the user's information as to why they could not be added successfully.

#### **Use Case 2: Administrator Deletes a User**

**Description:** An administrator is logged into the web portal and wants to delete a user.

**Goals:** To delete a user.

**Basic Flow:**

- z. Administrator clicks the option to delete a user.

- aa. Administrator selects the user to delete.**
- bb. Administrator is informed the user was deleted successfully.**

- Compatibility
  - Must be compatible with IE
  - Preference to be usable in Firefox and Safari as well
  - Minimize usage of Javascript to maintain this, only using where necessary to avoid potential problems.
  
- Summarization of user input
  - Provide a method of displaying the information that was most recently uploaded.
    - Date of upload
    - Summary or full display of all data that was received
    - Notification of missing data
  - Provide an update on progress overall
    - Review uploads from current month and potentially year
  
- Help location
  - Provide a detailed walkthrough of how to use the system in a help style
    - Simple English
    - Visual Aids extensively
    - Designed for users with little or no computer experience

## **Constraints and Feasibility Issues**

### ***Software Restrictions***

The client has specifically requested that our solution must be using MySQL 4.1. This is the server they are running and are not capable of upgrading to fit a solution using newer software. The solution must also be compatible with Apache 2.0.46. If the solution is not compatible with these two requirements it cannot be run and is useless to the client.

### ***Hardware Restrictions***

There is no more than 25 GB of free space on the clients hosting server. This limits our product to use less than that space. Considering the size and scope of this project the space requirement should not be an issue.

## ***Network Restrictions***

The users of our solution will be accessing the data on an 8 kbps connection. Not only does that not allow large data transfers but it is also very expensive for them to use. The solution should be capable of operating at a low transfer speed and transmit as little data as possible.

## **Project Execution Plan**

### ***Design (2/5/09 – 2/19/09)***

The design portion will be spent creating the design specification for the application as well as extensive team-client interaction to ensure the design fulfills the entire client and team's requirement.

2/12/09 – Design Specification Draft

2/19/09 – Design Specification Final

### ***Implementation (2/19/09 – 4/2/09)***

Implementation will be divided into three phases.

- Phase 0 (2/19/09 – 3/15/09)  
This phase will consist of creating the framework for our application. This includes developing an authentication system for users as well as administrators, creating a translation system to support multiple languages, creating the download management module and creating the basic look and feel of the web portal.
- Phase 1 (3/15/09 – 3/25/09)  
This phase will consist of creating the more advanced features of the application. These features will include the advanced project view module, recent upload module and instructions module.
- Phase 2 (3/25/09 - 4/2/09)  
The final phase will consist of putting together any incomplete modules as well as ensuring the application is presentable for user testing.

### ***User Testing (4/2/09 – 4/16/09)***

During this period we will have a presentable product available for user testing. Users will be selected from the client in order to test usability and resolve any bugs. The application will be revised based on the client's request as well as to solve any errors in the system.