

# GreenPlace: A User Driven Marketplace for Perishable Goods

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## **Abstract**

As the world population grows, food vendors need to be increasingly efficient in the distribution of their products. Products with short shelf-lives need to be distributed as quickly as possible in order to maximize potency. Existing technologies allowing the sale of goods from peer to peer lack key features to optimize usage for perishable goods. GreenPlace provides some of the essential features necessary to distributing perishable goods and managing those orders in an effective manner.

## CONTENTS

<b>I</b>	<b>INTRODUCTION</b>	<b>3</b>
<b>II</b>	<b>PROBLEMS WITH EXISTING TECHNOLOGIES</b>	<b>3</b>
<b>III</b>	<b>TARGET AUDIENCE</b>	<b>3</b>
<b>IV</b>	<b>DESIGN AND IMPLEMENTATION</b>	<b>3</b>
IV-A	Operating Environment . . . . .	3
IV-B	Architectural Pattern . . . . .	3
<b>V</b>	<b>FEATURES</b>	<b>3</b>
V-A	Tables . . . . .	3
V-B	Authentication . . . . .	3
V-C	Searching for Products . . . . .	4
V-D	Purchasing . . . . .	4
V-E	Product Management . . . . .	4
V-F	Interfacing with Other Users . . . . .	4
V-G	Site Comments / Feedback . . . . .	5
<b>VI</b>	<b>PROBLEMS ENCOUNTERED</b>	<b>5</b>
VI-A	Database Change . . . . .	5
<b>VII</b>	<b>FUTURE WORK</b>	<b>5</b>
VII-A	Subscriptions . . . . .	5
VII-B	Flagging Posts . . . . .	5
VII-C	View Upcoming Transactions . . . . .	5
VII-D	Sharing Contact Information . . . . .	5
VII-E	Usage Terms and Privacy Policy . . . . .	5
<b>VIII</b>	<b>CONCLUSIONS</b>	<b>5</b>
<b>IX</b>	<b>APPENDIX</b>	<b>7</b>
IX-A	Technologies Used . . . . .	7
IX-B	Data Dictionary . . . . .	8
IX-C	Figures . . . . .	8
IX-D	Special Thanks . . . . .	19

## I. INTRODUCTION

Many existing technologies<sup>10</sup> allow the peer to peer<sup>2</sup> sale of goods. Though acceptable for most products<sup>3</sup>, these technologies<sup>10</sup> are difficult for use by vendors<sup>4</sup> of perishable goods<sup>7</sup>. GreenPlace<sup>1</sup> has a simplified design, is easily accessible, and provides powerful search methods, communication methods, and a product<sup>3</sup> management system all to facilitate peer to peer<sup>2</sup> transactions between vendors<sup>4</sup> and consumers<sup>5</sup> of products<sup>3</sup> with limited shelf-lives<sup>8</sup>.

## II. PROBLEMS WITH EXISTING TECHNOLOGIES

Existing technologies<sup>10</sup> like Craigslist function well for the sale of products<sup>3</sup> that do not expire. These technologies<sup>10</sup> lack the ability to search products<sup>3</sup> by when the vendor<sup>4</sup> is available to conduct a sale. If the fruits on a tree are going to be harvested after a certain date, the farmer would have to add information inside the text post stating when the apples are available. Similarly, users interested in purchasing these apples must individually view each post's content rather than being able to filter by product<sup>3</sup> availability<sup>17</sup>. Filtering search results based on availability<sup>17</sup> will simplify the purchasing process of products<sup>3</sup> with limited shelf-lives<sup>8</sup>.

When searching Craigslist for a product<sup>3</sup>, it can be difficult to filter results based on location. If you wish to search for a product<sup>3</sup> within a 10 mile radius of your current location, you are forced to switch to map view and individually click on each listing to view the title of the link. Craigslist is also separated into separate subdomains to represent each local area. If searching with a radius extending outside of the local area, the search must be performed under each Craigslist sub-domain. Third party search engines such as [www.searchtempest.com](http://www.searchtempest.com) exist to solely provide the ability to search all Craigslist for products<sup>3</sup> within a certain distance of your location. Users<sup>6</sup> would benefit through having these map features integrated into a single service.

If a vendor<sup>4</sup> wishes to sell a large quantity of products<sup>3</sup> using existing technologies<sup>10</sup>, they must either post a single listing representing the sale of all products<sup>3</sup> or multiple listings each representing a fraction of the total quantity available. When the vendor<sup>4</sup> is able to sell some of their products<sup>3</sup>, they must manually update the listing to reflect the new quantity available. An ideal marketplace would automatically update the user's<sup>6</sup> listing as products<sup>3</sup> are sold.

## III. TARGET AUDIENCE

GreenPlace<sup>1</sup> is intended for use by primarily perishable good<sup>7</sup> producers and consumers: farmers, grocery stores, merchants, and the general public. Producers of local non perishable products could also benefit from using the site as a means of distributing their goods as GreenPlace<sup>1</sup> flexible in design in order to allow the sale of all legal products.

## IV. DESIGN AND IMPLEMENTATION

### A. Operating Environment

GreenPlace<sup>1</sup> is accessible from an HTTP server hosted the cloud using Amazon Web Services (AWS). This allows the software to be accessed by anyone with an internet

connection without needing to manually install software locally. Most users<sup>6</sup> currently are aware of how to connect to a website and navigate it with minimal instruction. This operating environment allows GreenPlace<sup>1</sup> to reach a wide audience of users<sup>6</sup> with both internet access and an installed web browser. Node package Forever is used to ensure that the server is restarted in the event of an unexpected crash.

### B. Architectural Pattern

GreenPlace<sup>1</sup> follows a model, view, controller architectural pattern. This allows the model and view components to be reused within the software. As shown in Figure 1, the user<sup>6</sup> interacts with the Jade generated view in order to notify the controller of what actions to perform. The controller uses Express to act upon the AJAX requests sent as a result of user<sup>6</sup> pressing buttons or clicking hyperlinks. Depending on the uploaded data, the controller can decide whether to update the PostgreSQL backend using Sequelize or display a new view to the user<sup>6</sup>.

## V. FEATURES

### A. Tables

Users<sup>6</sup> have the ability to sort each column by ascending or descending values and filter rows based on provided text on any page containing a table (Figures 10, 14, 15, 17, and 19).

### B. Authentication

When a user<sup>6</sup> visits GreenPlace<sup>1</sup> they can choose to log into an existing account<sup>11</sup>, create a new account<sup>11</sup>, or skip authentication and access a limited portion of the site. Creating a new account is as simple as providing a valid email address, username, and password (Figure 2). The provided email address must be validly formatted. Neither the username or email address can be in use by an existing user<sup>6</sup> as they are both used for identifying the user<sup>6</sup> account<sup>11</sup>. Authenticating with an existing account<sup>11</sup> is as simple as typing in the username or email and password associated with the user<sup>6</sup>. Once a user<sup>6</sup> has authenticated, their session is recorded in order to prevent the need for authenticating multiple times during a single usage session<sup>12</sup>.

If authentication is skipped, the user<sup>6</sup> can still access GreenPlace<sup>1</sup> by browsing and searching for posted products<sup>3</sup>. If an unauthenticated user attempts to access any site feature other than browsing, searching, or viewing a product<sup>3</sup>, a prompt for authentication will occur as all other features require an authenticated account<sup>11</sup> for use.

If a user<sup>6</sup> forgets their password, their password can be reset by following the password reset link at the bottom of the authentication page (Figure 2). The user can then input their username or email address and generate a reset url sent to their email address (Figures 4 and 5). This url is only valid for thirty minutes, during which the user can set a new password to be associated with their account<sup>11</sup>. If the user attempts to use the reset url outside the reset time window, their password will not be changed.

Note that passwords are hashed using MD5, compared, and stored in the database. Once a password has been stored it is never returned to plain text.

### C. Searching for Products

Users<sup>6</sup> can find and view products<sup>3</sup> on GreenPlace<sup>1</sup> by using one of three methods: browsing, searching, or sharing. All of these methods are designed so that first time consumers<sup>5</sup> view the benefits of becoming a regular user<sup>6</sup>.

Browsing for a product<sup>3</sup> is done by selecting a location on an embedded map (Figure 6). Products<sup>3</sup> are placed on the map as pins as the user<sup>6</sup> pans to new locations or decreases the map scale. When a pin is clicked a box expands showing the product<sup>3</sup> name, description, and vendor<sup>4</sup>. The name and vendor are both hyperlinks that open tabs to the product<sup>3</sup> and vendor<sup>4</sup> pages respectively.

More specific products<sup>3</sup> can be found through performing a search. Searching is done through initially selecting a single location on a map and specifying a radius around that area where the product<sup>3</sup> must exist (Figure 7). After specifying a location and radius the user<sup>6</sup> must provide keywords to look for in the product<sup>3</sup> name and description. Additional criteria which can be provided include time periods in which the vendor<sup>4</sup> has marked as available for sale, the minimum quantity of units<sup>13</sup> available, and a minimum or maximum price for the desired quantity (Figures 8 and 9). Once the search criteria is filled and submitted, the user<sup>6</sup> is shown all results on a table containing product<sup>3</sup> name, vendor<sup>4</sup>, quantity, and price (Figure 10).

It is worth noting that when searching, the provided availability<sup>17</sup> is assumed to be provided in the respective timezone in which the product<sup>3</sup> is being sold. That is to say that if the user<sup>6</sup> is located in Los Angeles and searching for products<sup>3</sup> is located in New York, the provided availabilities<sup>17</sup> are not converted from Pacific Standard Time to Eastern Standard Time, but rather assumed to be provided in Eastern Standard Time. This is to prevent the need for users to manually convert provided availabilities<sup>17</sup> when searching for products<sup>3</sup> in other time zones.

### D. Purchasing

Once a consumer<sup>5</sup> has found a product<sup>3</sup> they wish to purchase, a button on the product<sup>3</sup> page that when clicked redirects to an order form (Figure 12). On this form the consumer<sup>5</sup> specifies the desired quantity, price, time of sale, and optional message to send to the vendor<sup>4</sup>. Once an order has been placed the consumer<sup>5</sup> cannot edit the order. If the order was placed by mistake or is no longer valid, the consumer can “Rescind” in order to delete the order (Figure 15).

### E. Product Management

Vendors<sup>4</sup> submit their products<sup>3</sup> to GreenPlace<sup>1</sup> by providing the product<sup>3</sup> name, description, image, total quantity, pricing, availability<sup>17</sup>, and pickup location (Figure 11). The product<sup>3</sup> description can be formatted using markdown<sup>15</sup> to include hyperlinked, bolded, italicized, underlined, and

sized text. These fields exist to organize the information for consumers<sup>5</sup> browsing GreenPlace<sup>1</sup>. After submission, all product<sup>3</sup> fields can be modified in case a change needs to be made (Figure 13). Before finalizing changes to an existing or submitting a new product<sup>3</sup>, the vendor<sup>4</sup> is shown a page where the post can be previewed. This feature is useful to ensure that the markdown formatted text appears as intended before submission.

If a vendor<sup>4</sup> uses other advertising methods to distribute products<sup>3</sup>, they can include a hyperlink to the product<sup>3</sup> page to direct traffic toward their post. The hyperlink allows possible consumers<sup>5</sup> to view the product<sup>3</sup> without authentication. The product<sup>3</sup> page includes information regarding the name, description, initial quantity, pricing, availability<sup>17</sup>, pickup location, and remaining quantity (Figure 12).

Note that when setting the availability<sup>17</sup> of a product<sup>3</sup> the times will be set to the respective timezone the product<sup>3</sup> is sold in.

All products<sup>3</sup> listed on the marketplace by the authenticated user<sup>6</sup> can be viewed from their “My Items” page (Figure 14). This page provides functionality to view, edit, or delete products<sup>3</sup> currently listed on the marketplace for sale.

Once the product<sup>3</sup> is submitted to the marketplace, the vendor<sup>4</sup> is responsible for managing orders placed by other users<sup>6</sup>. The vendor<sup>4</sup> can accept or decline the order signifying whether the sale will be completed on the requested date for the provided quantity and price (Figure 17). If the order is accepted, the remaining quantity will automatically update relative to the quantity sold in the accepted order. The consumer<sup>5</sup> can see the acceptance status<sup>14</sup> of their order set by the vendor<sup>4</sup>. This establishes a standard means of communication regarding the sale and purchases of products<sup>3</sup> along with the built in messaging system (Figure 19). When changes are made to a product<sup>3</sup>, its orders are not modified in any way. Accepted orders will remain accepted even if the total quantity is reduced below the number purchased in the accepted order.

Once an order has been placed its acceptance status<sup>14</sup> is set to “Pending”. The Orders that are pending can be rescinded by the consumer<sup>5</sup> and accepted or declined from the vendor<sup>4</sup> only if the order’s status is “Pending”. Once a change has been made by the consumer<sup>5</sup> or vendor<sup>4</sup> the status cannot be changed. Both the vendor<sup>4</sup> and consumer<sup>5</sup> will receive an email indicating a new order has been placed or a change in acceptance status<sup>14</sup>. Users<sup>6</sup> are encouraged to share more specific information regarding the purchase such as contact information and directions once an order has been placed.

Note that an order cannot be placed on a product<sup>3</sup> owned by the same user<sup>6</sup>.

### F. Interfacing with Other Users

Each account<sup>11</sup> has a customizable profile (Figure 18). This profile page allows other users<sup>6</sup> to view public information posted by the account<sup>11</sup> owner. The profile page can include a profile picture and text formatted with markdown<sup>15</sup>.

Users<sup>6</sup> can message one another for any reason by clicking a button at the bottom of the user's<sup>6</sup> profile page (Figure 18). A message must contain both a subject and description (Figures 20, 21, 22). All users<sup>6</sup> have an inbox where messages can be viewed and a responses can be sent to the user<sup>6</sup> that sent the message (Figure 19). Once a message is sent, the recipient will receive an email notification indicating that a message has been received. This promotes users<sup>6</sup> to return to GreenPlace<sup>1</sup> and to communicate without soliciting their contact information.

#### *G. Site Comments / Feedback*

As GreenPlace<sup>1</sup> is in the early development process, feedback from users<sup>6</sup> is important in order to determine features and modifications to consider making. A "Give Feedback" hyperlink at the bottom of each page allowing users<sup>6</sup> to send messages to my personal GreenPlace<sup>1</sup> account<sup>11</sup> would be sufficient for gathering feedback from users<sup>6</sup>.

### VI. PROBLEMS ENCOUNTERED

#### *A. Database Change*

Originally, GreenPlace<sup>1</sup> was constructed using a combination of MongoDB and Mongoose for the model component. These are relatively new technologies that allow data to be stored in documents rather than the commonly used relational tables. It was a pitfall to assume that newer technologies are always better than the old. With MongoDB, aggregation queries were difficult and impractical to write as they require a lot of boilerplate code. An example of this is where MongoDB in its current state does not allow performing a query to determine the distance from a location and verifying that it's values are within inside of an array in a single query. This requires two queries to perform a single action and then only displaying the results inside of both queries. This query became resource intensive and showed the weaknesses in the application of MongoDB.

In the second quarter, MongoDB and Mongoose were completely replaced by PostgreSQL and Sequelize. By switching to PostgreSQL, aggregation queries became easier to write and less resource intensive.

### VII. FUTURE WORK

#### *A. Subscriptions*

Users<sup>6</sup> should be able to subscribe to specific vendors<sup>4</sup> in order to receive email notifications when the vendor<sup>4</sup> places an item for sale on the marketplace. This would encourage users<sup>6</sup> to return GreenPlace<sup>1</sup> to conduct business.

#### *B. Flagging Posts*

As with all online services, some users<sup>6</sup> post inappropriate or illegal content. A method should exist to flag these users<sup>6</sup> and products<sup>3</sup> for removal.

#### *C. View Upcoming Transactions*

When a vendor<sup>4</sup> has a large number of orders for a product, it would be beneficial to display them on a calendar. This would allow the vendor<sup>4</sup> to view their schedule easily without having to navigate through each order. It may also be beneficial to export this data to an existing calendar service such as Google Calendar.

#### *D. Sharing Contact Information*

After a vendor<sup>4</sup> accepts an order placed by the consumer<sup>5</sup> both users<sup>6</sup> should be able to access private information regarding each other such as contact information and first and last name. This will allow both users<sup>6</sup> to communicate outside of GreenPlace<sup>1</sup> before completing a transaction.

#### *E. Usage Terms and Privacy Policy*

Links to usage terms and the privacy policy should be visible at the bottom of each page in order to inform the user<sup>6</sup> of how the site should be used legally and what is being done with user<sup>6</sup> provided data.

### VIII. CONCLUSIONS

GreenPlace<sup>1</sup> is a peer to peer<sup>2</sup> marketplace designed for the sale of perishable goods<sup>7</sup>. The software allows users<sup>6</sup> to find products<sup>3</sup> within a radius from a provided location, communicate with other users<sup>6</sup> through an internal messaging service, and manage their product<sup>3</sup> information and orders in a single location. GreenPlace<sup>1</sup> is a digital farmers market with the tools essential to selling perishable goods<sup>7</sup>.



## IX. APPENDIX

### A. Technologies Used

Technology	Description	Resource URL
Dploy.io	Tool for automatically deploying	<a href="http://dploy.io/">http://dploy.io/</a>
Amazon Web Services	Server hosting GreenPlace	<a href="http://aws.amazon.com/free">aws.amazon.com/free</a>
NodeJS	JavaScript library used to run the HTTP server	<a href="https://nodejs.org/">https://nodejs.org/</a>
Forever	Node package used to keep a node process running without interruptions	<a href="https://github.com/foreverjs/forever">https://github.com/foreverjs/forever</a>
Jade	Node template engine used to render HTML files	<a href="http://jade-lang.com/">http://jade-lang.com/</a>
Passport	Node package used for authenticating users and managing usage sessions	<a href="http://passportjs.org/">http://passportjs.org/</a>
MongoDB	Document database completely replaced by PostgreSQL in the final version of the website	<a href="https://www.mongodb.org/">https://www.mongodb.org/</a>
Mongoose	Node package used to communicate to MongoDB. Completely replaced by Sequelize in the final version of the website.	<a href="http://mongoosejs.com/">http://mongoosejs.com/</a>
PostgreSQL	Relational database used to user information	<a href="http://www.postgresql.org/">http://www.postgresql.org/</a>
Sequelize	Object relational mapping used for communicating with PostgreSQL database using JavaScript	<a href="http://docs.sequelizejs.com">http://docs.sequelizejs.com</a>
Busboy	Node package used to parse multipart form-data POSTed by users	<a href="https://www.npmjs.com/package/busboy">https://www.npmjs.com/package/busboy</a>
Body-Parser	Node package used to parse non multipart form-data POSTed by users	<a href="https://www.npmjs.com/package/body-parser">https://www.npmjs.com/package/body-parser</a>
Underscore	JavaScript utility package	<a href="https://www.npmjs.com/package/underscore">https://www.npmjs.com/package/underscore</a>
Lodash	JavaScript utility package	<a href="https://www.npmjs.com/package/lodash">https://www.npmjs.com/package/lodash</a>
Crypto-Js	Node package used for hashing user passwords	<a href="https://www.npmjs.com/package/crypto-js/">https://www.npmjs.com/package/crypto-js/</a>
Nodemailer	Node package used to send templated emails	<a href="https://www.npmjs.com/package/nodemailer/">https://www.npmjs.com/package/nodemailer/</a>
Email-Templates	Node package used to template emails	<a href="https://www.npmjs.com/package/email-templates/">https://www.npmjs.com/package/email-templates/</a>
Moment	Node package used for manipulating JavaScript Date objects	<a href="http://momentjs.com/">http://momentjs.com/</a>
Moment-Timezone	Node package for converting moments from one timezone to another	<a href="http://momentjs.com/timezone/">http://momentjs.com/timezone/</a>
Tzwhere	Node package to determine the timezone of gps coordinates	<a href="https://www.npmjs.com/package/tzwhere/">https://www.npmjs.com/package/tzwhere/</a>
Marked	Node package used to parse markdown text into HTML	<a href="https://www.npmjs.com/package/marked">https://www.npmjs.com/package/marked</a>
Express	Handle user AJAX requests	<a href="https://www.npmjs.com/package/express">https://www.npmjs.com/package/express</a>
Express-Session	Node package used to handle usage sessions without reauthenticating with each page load	<a href="https://www.npmjs.com/package/express-session">https://www.npmjs.com/package/express-session</a>
Express-Validator	Node package used to validate user input and sanitize uploaded data	<a href="https://www.npmjs.com/package/express-validator/">https://www.npmjs.com/package/express-validator/</a>
PureCSS	CSS library used to style web pages	<a href="http://purecss.io">purecss.io</a>
jQuery	JavaScript utility library	<a href="https://jquery.com/">https://jquery.com/</a>
jQuery DatePicker	JavaScript library allowing the selection of multiple dates on a calendar	<a href="http://keith-wood.name/datepick.html">http://keith-wood.name/datepick.html</a>
Isotope	JavaScript library used to allow sorting of HTML tables	<a href="http://isotope.metafizzy.co/">http://isotope.metafizzy.co/</a>
Google Maps JavaScript v3 API	JavaScript library used to allow user map interaction	<a href="https://developers.google.com/maps/documentation/javascript/reference">https://developers.google.com- /maps/documentation/javascript/reference</a>

## B. Data Dictionary

1. GreenPlace	SaaS created to facilitate peer to peer sales of perishable goods
2. Peer to Peer	Direct sale and purchase of a product from one user to another
3. Product	Anything that is produced and intended for sale to another party
4. Vendor	A person or company that sells products to another party
5. Consumer	A person or company that purchases products
6. User	A person or company that uses the website [vendor, consumer]
7. Perishable Good	A product which has a fixed lifespan before it is no longer valid
8. Shelf-Life	The amount of time a product can be left unused before it is no longer able to function properly
9. Potency	The effectiveness of a product to perform its intended purpose
10. Technology	Other marketplaces intended for peer to peer sales: Craigslist, Ebay, Amazon, etc.
11. Account	Digital information that represents the user when using GreenPlace
12. Usage Session	Period of time from which a user uses GreenPlace
13. Unit	The unit used to quantify a product: litres, kilograms, and each individual product aka unit
14. Acceptance Status	Whether an order has been rescinded, accepted, declined, or pending approval
15. Markdown	Language that allows formatting of text
16. SaaS	Software as a service
17. Availability	The time which a sale can be conducted

## C. Figures

Fig. 1: MVC Diagram

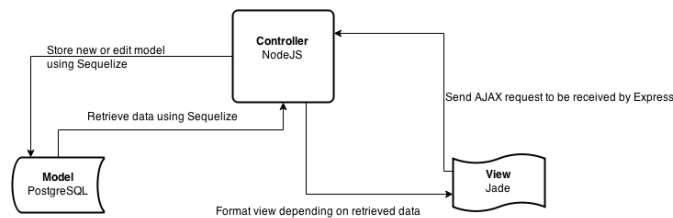




Fig. 2: Authentication

This is the default screen to an unauthenticated user. From this page the user can login to an existing or create a new account, or browse the marketplace without authenticating.

## GreenPlace

A User Driven Marketplace

### Login to Existing Account

Email or Username

Password

Login

### Register new Account

Email

Username

Password

Register

[Change Password](#) [Forgot Password](#)

### Just Want to Browse?

Tired of signing up without knowing what you're getting into? We know that it can be annoying to register when visiting a site for the first time. Please note that not all features are available if you skip authentication.

Click Here to Skip Authentication

Fig. 3: Change Password

Accessed by clicking the “Forgot Password” hyperlink on Figure 2. Users can change their password by filling in their username or email, old password, and new password.

### Change Password

Username Or Email

Old Password

New Password

Save Changes

Fig. 4: Reset Password

Allows users to reset their password by providing either their username or email address. It is accessed by clicking the “Reset Password” hyperlink on Figure 2. After submission, an email is sent to the user’s email address depicted by Figure 5.

### Reset Password

Email or Username

Send Email Verification

Fig. 5: Reset Password Email

Represents a reset password attempt generated by Figure 4. The user can click the reset url in order to change their password.

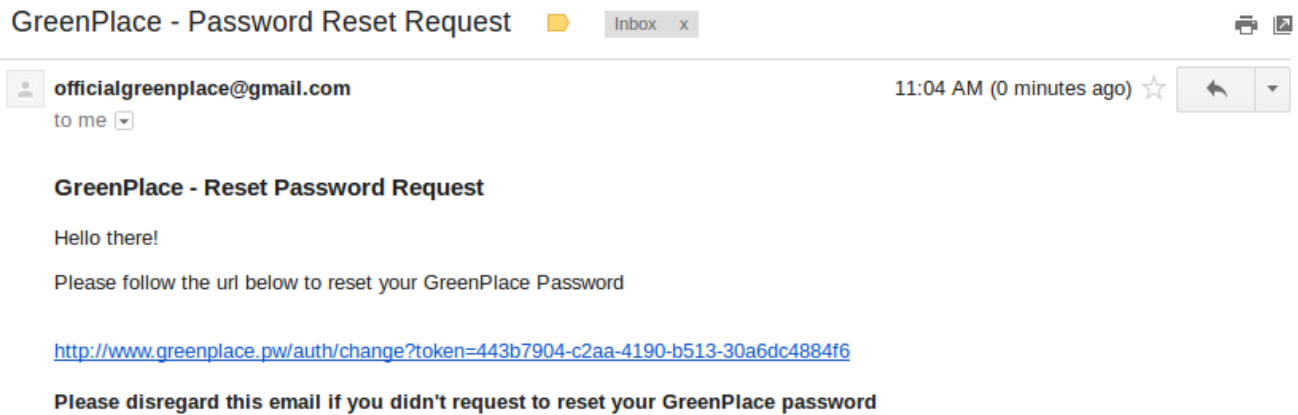


Fig. 6: Browsing the Marketplace

Default page for an authenticated user. The user is displayed all items for sale in their area. Users can center the map on their location by pressing the “Go to Current Location” button.

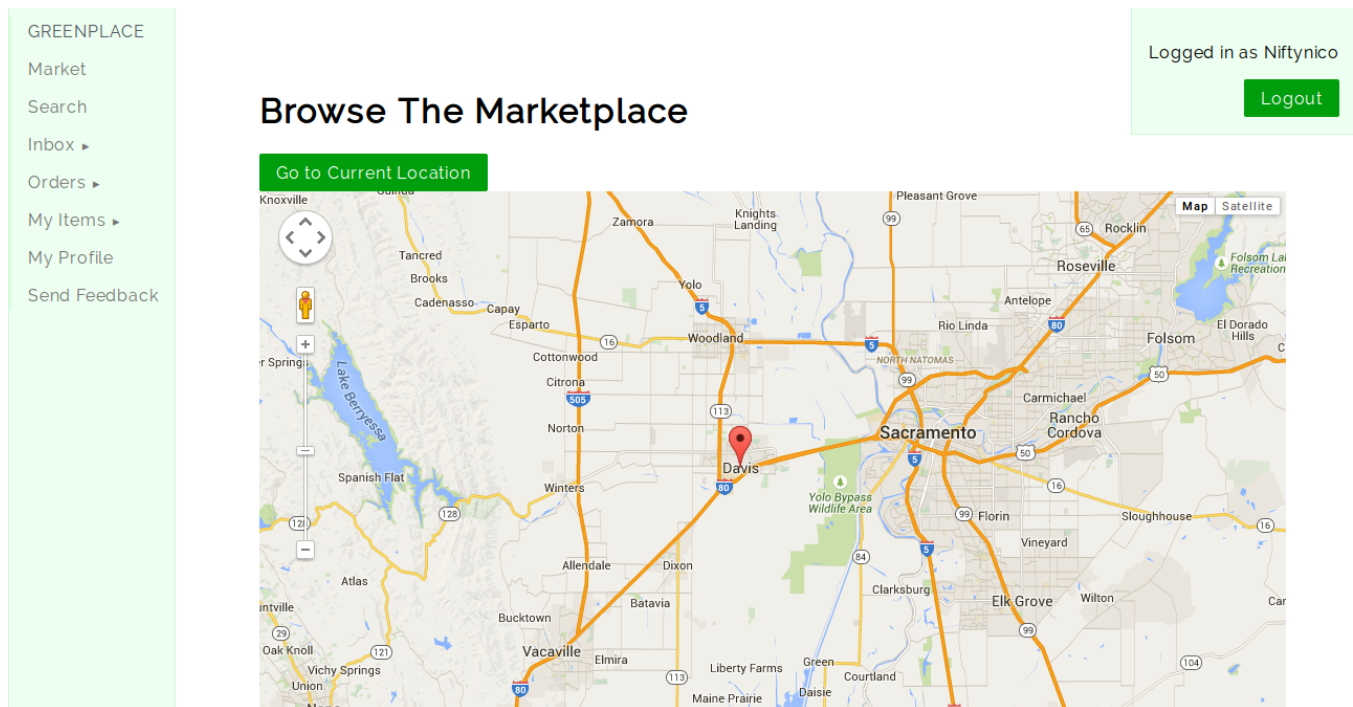


Fig. 7: Search Location

Allows users to set their location and radius to find items in.

GREENPLACE

Market

Search

Inbox ▾

Orders ▾

My Items ▾

My Profile

Send Feedback

Logged in as Niftynico

Logout

Search

Location

Filter

Results

Distance from selected location: 30

Use My Location

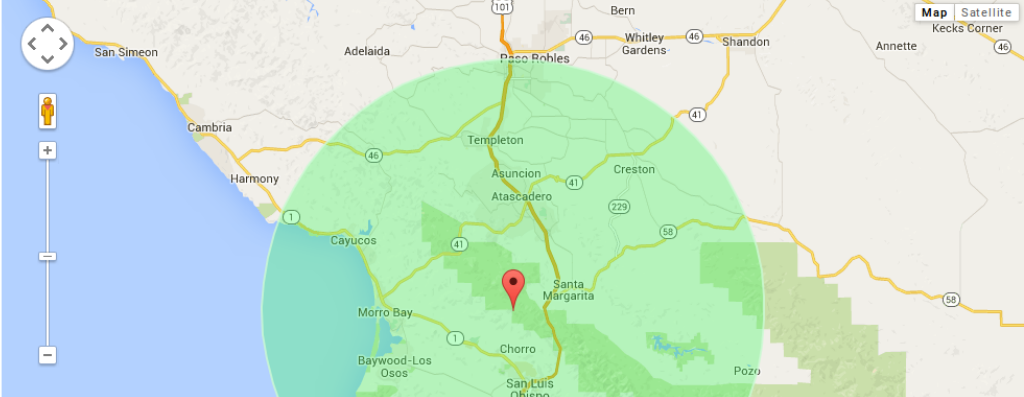


Fig. 8: Search - Selecting Availability

Select one or more days at once to be added to the search criteria.

GREENPLACE

Market

Search

Inbox ▾

Orders ▾

My Items ▾

My Profile

Send Feedback

Logged in as Farmer

Logout

Search

Location

Keywords

Quantity

Add date / time

Dates Available 06/10/2015,06/08/2015,06/

Sale start time

Sale end time

Submit

Clear

Close

1

2

3

4

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

Min Price Per Quantity

0

Max Price Per

Fig. 9: Search - Selected Availability to Add

Set the time period for the selected days to add to the search criteria.

**Search**

Location

Keywords

Quantity

Min Price Per Quantity

Max Price Per

**Add date / time**

Dates Available: 06/10/2015,06/08/2015,06/

Sale start time: 8:00 AM

Sale end time: 12:00 PM

Submit

Fig. 10: Search - Results

Results when searching for “Avocado” near San Luis Obispo.

**Search**

Location Filter Results

Name	Sold By	Total Quantity	Unit	Price Per	Filter
<a href="#">Avocados</a>	<a href="#">Farmer</a>	5	unit	2	
<a href="#">Ripe Avocado</a>	<a href="#">Farmer</a>	1	unit	1	

Fig. 11: New Item

Template to be filled by the user to represent the product for sale.

GREENPLACE

Market

Search

Inbox ▶

Orders ▶

My Items ▶

My Profile

Send Feedback

Logged in as Farmer

Logout

Item name

Sold by:

M↓

**Note:** section uses Markdown, a webpage formatter. You can learn the basics [here](#)

Describe your product

Initial listing quantity:

unit

Selling for \$

per

units

Upload item images

Browse...

No files selected.

Available on the following dates:  
(Set dates / times by clicking a day)

May 2015

Su	Mo	Tu	We	Th	Fr	Sa
						1
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Pickup Location  
(Set location by clicking map)

Use My Location

Fig. 12: Item  
Represents a product for sale.

GREENPLACE

Market

Search

Inbox ▶

Orders ▶

My Items ▶

My Profile

Send Feedback

Logged in as Farmer

Logout

Milk 🥛

18 litres remaining of 20 litres


Sold by: [Farmer](#)

Milk for sale!

Come and buy a few liters!

Initial listing quantity: 20 litre

Selling for \$2 per 1 litre (\$2 per litre)




Available on the following dates:

June 2015

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Place Order

Pickup Location



Template with prefilled information to streamline making changes to an existing item.

GREENPLACE

Market

Search

Inbox ▾

Orders ▾

My Items ▾

My Profile

Send Feedback

Logged in as Farmer

Logout

Milk

Sold by: [Farmer](#)

M↓

**Note:** section uses Markdown, a webpage formatter. You can learn the basics [here](#)

####Milk for sale!  
Come and buy a few liters!

Initial listing quantity:

20

litre ▾

Selling for \$

2

per

1

litres

Upload item images

Browse...

No files selected.

Available on the following dates:

(Set dates / times by clicking a day)

June 2015

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Pickup Location

(Set location by clicking map)

Use My Location

Table displaying all products for sale by the authenticated user available for purchase.

GREENPLACE

Market

Search

Inbox ▶

Orders ▶

My Items ▶

My Profile

Send Feedback

My Items +

Name	Total Quantity	Unit	Filter
<a href="#">Milk</a>	20	litre	<div><div>✖</div><div><div></div></div><div><div></div></div></div>
<a href="#">Avocados</a>	5	unit	<div><div>✖</div><div><div></div></div><div><div></div></div></div>
<a href="#">Ripe Avocado</a>	1	unit	<div><div>✖</div><div><div></div></div><div><div></div></div></div>

Logged in as Farmer

Logout

Fig. 15: My Orders

Orders that have been placed by the logged in user on products interested in purchasing.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback

Logged in as Niftynico

Logout

## My Orders

Vendor	Item Name	Quantity	Units	Price	Status	
<a href="#">Mhiguera40</a>	<a href="#">Organic Herbs</a>	0.3	kg	5	Pending	✕ 📄
<a href="#">Farmer</a>	<a href="#">Milk</a>	2	litre	4	Accepted	✕ 📄

Fig. 16: View Order

Detailed information regarding a potential product purchase. In this case, the order was declined by the vendor.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback

Logged in as Businessman

Logout

## Order for [Farmer's Milk](#) ✕

Placed by: [Businessman](#)

Status: **Declinded**

Seeks to purchase 15 litres of Milk for \$10

Order message:

I hope we can do business together

Sale time for **2015-06-11T09:00:00-07:00**

June 2015

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

### Pickup Location



Fig. 17: Customer Orders

Orders that have been placed on one of the logged in user's products.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback

Logged in as Farmer  
Logout

Viewing orders for Milk

18 litres remaining of 20 litres

Placed By	Quantity	Units	Price	Status	Filter
<a href="#">Niftynico</a>	2	litre	4	Accepted	✖ ✔ 📄
<a href="#">Businessman</a>	15	litre	10	Declined	✖ ✔ 📄


Fig. 18: Profile

A customizable profile displaying relevant merchant information about the user. Changes can be made by the authenticated user by clicking the pencil.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback

Logged in as Farmer  
Logout

Farmer's Profile ✎



Items I sell frequently

- Milk
- Eggs

Fig. 19: Messages Received

Displays messages sent from other users to that which is currently authenticated.

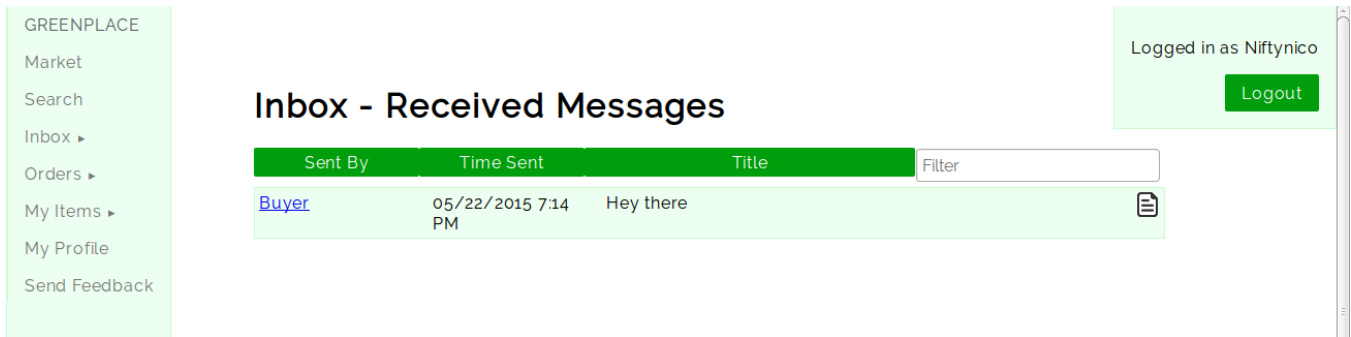


Fig. 20: View Message

A message sent to the currently authenticated user.

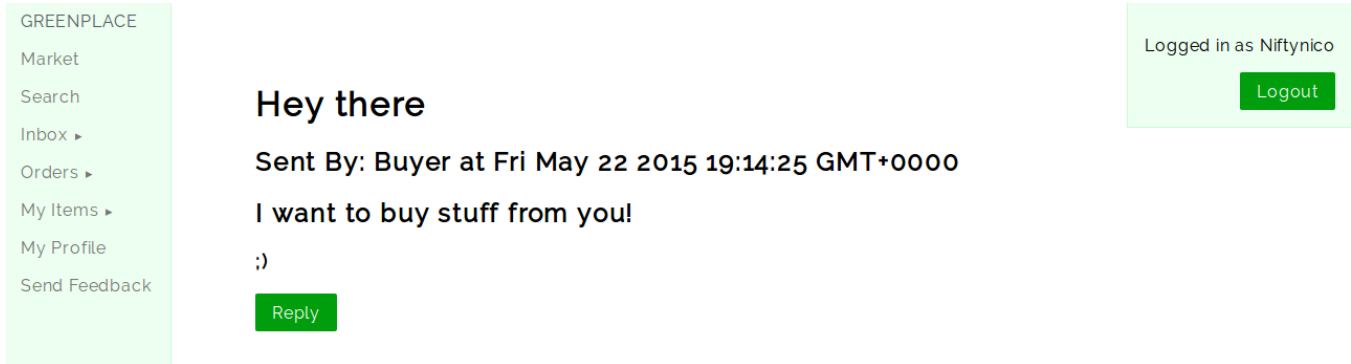


Fig. 21: Compose Message

Compose a message to be sent to another user using markdown formatted text.

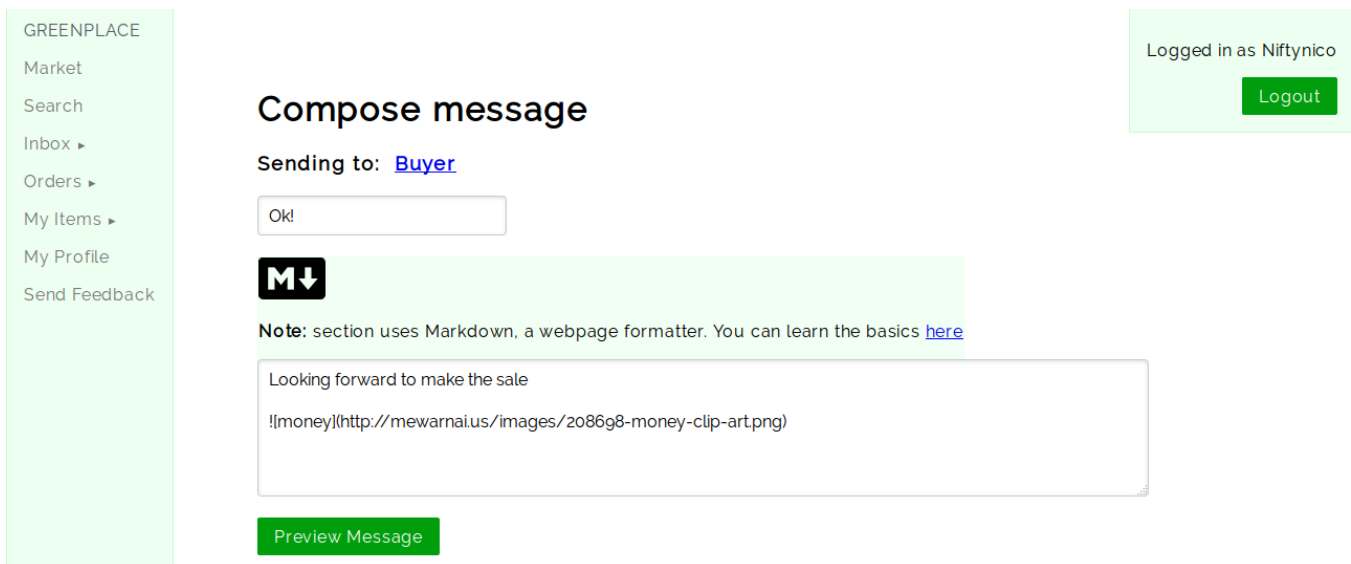


Fig. 22: Preview Message

Preview message to verify properly formatted text before sending.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback

Logged in as Niftynico  
Logout

## Ok!

Looking forward to make the sale



Send Message

Fig. 23: Send Feedback

Send a message to the system administrators regarding bugs, feature requests, and opinions.

GREENPLACE  
Market  
Search  
Inbox ▶  
Orders ▶  
My Items ▶  
My Profile  
Send Feedback


Logged in as Farmer  
Logout

## Send Feedback

Thank you for taking the time to help improve the site.  
Please address any bugs, feature requests, and any other site related inquiries here.

Sending to: [niftynico](#)

Title



**Note:** section uses Markdown, a webpage formatter. You can learn the basics [here](#)

Message

Preview Message

#### D. Special Thanks

- Adam Currie for creating the query using MongoDB that searches the database for matching products given keywords, location, availability, and minimum or maximum quantity.
- Justin Fujikawa for adding functionality to allow users to edit their description using markdown text.
- Dr. Clark Savage Turner and Dr. Phillip Nico for guidance during the project.