Creating the "Anti"-Social Network with GreenLYFE*

Extended Abstract†

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ABSTRACT

Currently, information about sustainable food sources is spread out and there is not an "all-in-one" place to learn or communicate with like-minded individuals who are also interested in building community gardens and food forests through permaculture, aquaponics, and other methods.

Our goal is to build a community and to advocate for people to communicate and meet face to face through these kinds of activities.

This project's audience is people who are looking for sustainable solutions to add to their lifestyle, GreenLYFE will connect like-minded individuals through community, permaculture, sustainable growing, aquaponics, and so forth. Unique Advantage: GreenLYFE would educate, connect people with different skill levels so they can work together, provide distribution of harvests (CSA) from different community gardens. GreenLYFE will be an all in one.

The main goals of this project are:

- To bring people together who want to be sustainable in their food sources
- To educate people about growing their own food
- To build a community
- To find the nearest community garden locations
- To provide volunteer opportunities

KEYWORDS

community garden, permaculture, sustainability, regenerative systems, aquaponics, food forest

1 INTRODUCTION

GreenLYFE is an application that will connect like-minded individuals through community, permaculture, sustainable growing,

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aquaponics, etc. The unique advantage of GreenLYFE is that it would educate, connect people with different skill levels so they can work together, provide distribution of harvests (CSA) from different community gardens. GreenLYFE will be an all in one application.

2 SOURCES OF INSPIRATION

The design precedents in this section have served to inform and influence the design of GreenLYFE.

- **Giving Garden Food Community** Giving Garden is a community app for gardeners and local food enthusiast to grow, share and eat food together.
- **Amerikua Permaculture** Amerikua Permaculture is a family business that serves the local community through education and implementation of regenerative design. We provide edible garden installation services and holistic nutritional coaching as well as ecologically oriented products. We also provide information, networking, and organize workshops on sustainability related subjects.
- **Little River Cooperative** Little River Cooperative (formerly Little River Market Garden) is made up of 2 urban vegetable plots as well as an edible plant nursery. Although we are not certified, we use only organic and sustainable practices of agriculture. We believe that the health of our soil is directly related to the quality of our harvest and our plants so we focus on composting, cover-crops and crop rotation to sustain the micro-organisms and organic matter in our fields. We don't use any synthetic chemicals, pesticides or fertilizers in our production. During the growing season, September-May, we produce 40 varieties of annual vegetables and herbs as well as many year round tropical crops like sugarcane, bananas, key limes and edible flowers.
- **American Community Gardening Association (ACGA)** The mission of the American Community Gardening Association is to build community by increasing and enhancing community gardening and greening across the United States and Canada.
  The Association supports community gardening by facilitating the formation and expansion of state and regional community gardening networks; developing resources in support of community gardening; and, encouraging research and conducting educational programs.
- **Miramar Community Garden** Located in Historic Miramar, the 7,400 square foot Miramar Community Garden is an award-winning "micro urban

farm" offering a social network where members learn about growing fresh organic produce and healthy living.

- **Gardroid (app)**
Gardroid is a fantastic app for any gardener. The app is well-written with a clean, user-friendly design. After you download the app, you can look through the list of fruits and vegetables to get a good idea about what to plant. As you plant these fruits and vegetables, add them to your garden in the app. When you add the date that you planted, you will see a progress bar next to your plant. It tells you how many days are left until your plants are ready. When you click on the plant, you can add notes, add items to the calendar or whatever else you need to do to be successful.

  This useful app not only keeps track, but it teaches you how to plant and make sure your plants are getting exactly what they need. When you click on a fruit or vegetable, it will tell you how deep and far apart to plant seeds, the proper pH level of the soil, optimal sunlight and more.

- **Vegetable Tree (app)**
Vegetable Tree is currently the number one selling app for gardening in the app store. The app goes over the basics of gardening, including sowing seeds, germinating, watering and harvesting. It's helpful to any homeowner with a garden. One of the features of this app is that it explains important characteristics of different fruits and vegetables and how they survive in a garden. You will become well-acquainted with each plant and know exactly what it needs to grow properly. You will even learn different indoor and outdoor requirements and the proper pH levels of the soil for each plant. You can learn different tricks for growing the different items. There is a vast catalog that you can choose from and update on your own if you are growing something that isn't listed.

  This app can be customized to your garden's specifications in order to help your plants succeed. Not only will it tell you when the fruits and vegetables are ready for harvest, but you will also know the exact dates that you need to harvest your garden before your fruits and veggies are overdue. This app is also very social media-friendly. You can take notes and even share them on social media so you can share expert gardening tips with your like-minded friends.

- **Happy Farm (Game)**
Happy farm was a popular online game in 2007 in China. In that game each player(farmer) has his own online garden to plant food, they need to water them, pull the weeds, as well as apply pesticide regularly.

  Players can harvest food after they are ripe, they can also send friend request to other players, once 2 players are friends in that game, they can help each other to water their garden, meanwhile they are allowed to steal some food from each other.

2.1 Competitive Analysis

Our product would be different from our competitors because it would be an "all in one" stop for gardening, from learning to collaborating to sharing.

We found that the features we were thinking of for GreenLYFE were spread out throughout all of our competitors. None of them were an "all in one" and in many of them you have to pay to talk to an expert or pay to access certain features. In comparison, GreenLYFE would offer free chats with the experts. Perhaps in the future we would consider selling perks, but we would like the main features to be free and accessible to all users.

2.2 Stakeholders

All of our key stakeholders have interest in empowering people to grow their own food and are health conscious. Some of them incorporate this interest into their hobbies while others incorporate it into their work. The key stakeholders we identified are: garden designers, landscape architects, composting experts, beekepers, public schools, online gardeners, hydroponic/aquaponics enthusiasts, farmers, people interested in farming, people who want a community garden, homeowners, housewives, plant nurseries, herbalists, botanists, aryuveda practitioners, nutritionists, vegetarians/vegans, people who want to save money on food, people on a diet, social enthusiasts, people who want to learn how to grow their own food, plant experts, and ecologists.

2.3 User Interviews and Observations

First, we used a stakeholder mapping technique to understand what kind of users would benefit from the product we had in mind. We selected nine stakeholders from here that we felt were representative of our target audience and contacted them to set a time for an interview. We tried to get as many in-person interviews as possible.

Our interviewees ranged from early 20s to late 60s. Some of them had college degrees and all had varying experience levels in gardening.

Our nine interviewees were: Permaculture System Designer, Nutritionist and Permaculture System Designer for Schools, Farmer, Two Home Gardeners, Nutritionists, Vegetarian, Aquaponics Gardener, Garden Club Volunteer

2.4 Interview Questions

We prepared the following questions ahead of the interviews. Not all of these were asked, but it gave us an idea of where we wanted the interviews to go.

For Permacultarists

- How can a food forest or a permaculture system benefit a community? Do you see these kinds of projects happening here in Miami?
- In your opinion, how do you see these systems impact a community?
- What kind of education does this project offer?
- What made you decide to turn your farm organic; why is it important to you?
- Where do you see the future of farming? What do you hope for it?
- How do you see your role in the community?
- What was the process of starting your own garden?
- Why did you start growing your own food?
- Where did you learn how to take care of your different plants?

- What problems did you encounter in the beginning?
- What pests do you get in your garden and what did you do about it?
- How would you feel if there was a community garden in your neighborhood?
- What do you think about an app that will help connect you with other people who are also interested in growing their own food?
- Can you define Permaculture?
- How do you first prepare a space for a new design?
- What is your process when designing a food forest?
- How can a food forest benefit a community?
- Are you familiar with city ordinances around community food forests?
- Can you tell me more about the possibility of creating more community around food forests/gardens?
- How do you think this impacts the community?
- What are some of the challenges a community faces with these kinds of spaces?
- Why, in your opinion, aren't there more community food forests/gardens in the city?
- How can people get involved?
- How did you start your involvement with schools in the city and creating food gardens for the children to learn?
- How are the children receiving this activity?
- What kind of information are the children learning?
- How sustainable/maintainable are the gardens?
- What do they provide?
- Who maintains the gardens?
- What are some of the challenges you face with these kinds of projects?
- Do you know how these kinds of methods can be implemented in all school systems?
- What else can you offer us so people can understand and get involved in these projects?

People who already have their own home garden

- Why did you start growing your own food?
- What was the process of starting your own garden?
- Where did you learn how to take care of your different plants?
- What problems did you encounter in the beginning?
- What pests do you get in your garden and what did you do about it?
- How would you feel if there was a community garden in your neighborhood?
- What do you think about an app that will help connect you with other people who are also interested in growing their own food?

Aquaponics

- Why did you start growing your own food?
- What was the process of starting your own aquaponics garden?
- Where did you learn how to take care of your different plants?
- What problems did you encounter in the beginning?

- What pests do you get in your garden and what did you do about it?
- How would you feel if there was a community garden in your neighborhood?
- What do you think about an app that will help connect you with other people who are also interested in growing their own food?

Nutritionists

- What do you do as a nutritionist?
- What is the role you play in the sustainable-living/green industry?
- What problems you may face working as a nutritionist in current situation (notify country)?
- Do you think people are aware of the importance of your role?
- Do you think people should get more education about nutrition?
- How would you feel if there was a community garden (food forest) in your neighborhood?
- How would you want to contribute? What activities would you like it to have?
- (ask more related questions according to their answer)

Vegetarians or Vegans

- Why did you become a vegan/vegetarian?
- What problems do you face as a vegetarian currently?
- Have you worried about food supply?
- How would you feel if there was a community garden in your neighborhood? How much would you like to join?
- How would you want to contribute? What activities would you like it to have?
- What do you think about an app that will help connect you with other people who are also interested in growing their own food?

2.5 Interview Findings and Observations

Carolina Alzate *Permaculture System Designer*

Carolina owns Amerikua Permaculture Design and I she had very great insight as to how to start building your own permaculture system and have the garden thrive and replenish itself by the way you design it. Every piece of information she gave was deliberate and educational.

Emiliano Camargo *Nutritionist and Permaculture System Designer for Schools*

Emiliano also owns Amerikua Permaculture Design and is an active farmer and teaches workshops as well as children in schools how to grow their own food. He helped us understand how the schools were contacted by the Educational Fund and how the teachers participate and make the creation of the gardens part of the children's curriculum. He also provided ideas as what things would be ideal in a platform to help people come together to create community through gardening.

Ian Pagan-Roig *Farmer/Owner of Finca el Josco Bravo*

Ian is the owner of a farm in Puerto Rico. He gave us insight on why growing your own organic food is important for the well-being of the body as well as knowing how to tend a garden. He explained

also what his process is in his distribution services to restaurants and cafes throughout the city.

Jijun Qiu *Home Gardener*

Ms Qiu is a home gardener in China, she takes care of the garden after retired. In the interview, she provides us with some useful information about the process to start a home garden. Besides, she mentioned that she lives the suburb in a big city so there's no such places as a big farm, thus she can only grow plants in her backyard. She would be glad if there is a community for people like her to join and share the same hobbies, and she would like to share her experience with other amateurs.

Hanlun Chen *Majoring in Nutrition*

Hanlun is originally from China and she is a college student majoring in Nutrition in Mcgill University, Canada. She has a deep insight of the nutrition industry and how it will connect or contribute to the GreenLYFE community. In the interview, she mentioned a fact that there's a growing tendency that people are paying more attention to "eat healthy" these days, however, there are so many misleading articles entitled like "10 Most Nutritious and Healthy Vegetables You Must Have Everyday" being spread and shared on social media, while the content of which is not entirely correct. In all words, people need guidance from professional nutritionist. A nutritionist's job is to educate people about the nutrition-related knowledge, moreover, to help customizing diet routines for those who are in need. As a conclusion, since that the GreenLYFE community is somehow an educational organization, it needs people like them to work there as a lecturer.

Aishwarya Navale *Vegetarian*

Aishwarya is a vegetarian and she expressed her interest and enthusiasm in the community. She mentioned a problem that she didn't have enough options when she went out with her friends for dinner.

Joseph Farrell *Aquaponics Gardener* Likes the ease of building an aquaponics system, but has experienced (and heard of) obstacles from local ordinances and neighbors (like HOA) when creating any kind of garden space. He mentioned that it is important to keep the weather in Florida, like hurricane season, in mind and have a plan in advance. Feels that community gardens can also be a way to help the homeless if they are willing to put in some effort to care for it. An aquaponics would be a great addition to a community garden because it is easy installed and cared for. Would love a personalized app even though he gets a lot of information online (Facebook, Instagram, Reddit, etc).

Karla Torres *Home Gardener*

It's overwhelming to look up information because there is so much out there. She felt that she didn't know where to look and preferred to ask someone directly. She liked the idea of connecting with other home gardeners and also having one big community garden. Tending to her own garden has helped her start to eat better.

Paulina Tuckler *Garden Club Volunteer*

Felt that more resources would have been great for the garden club, such as money, but also liked that they could make it happen anyway with few resources. Explained that members all shared duties and were assigned different days so that one person wasn't responsible for everything. Has seen many lots that sit empty and would be a good space for a community garden, but owners have been unwilling to let it be used for that. On the app, they would like to see something more encyclopedic for bugs and common plant conditions, grow charts for different areas, companion planting in various media beds. Finding a garden or fellow gardener.

2.6 Summary of Research Findings

Pros of Community Gardens and Food Forests:

- Offering a place for amateurs to learn from and communicate with masters
- Connecting with neighbors in real life
- Helping to feed low-income community members
- Helping the homeless by providing food, shelter, and education to those who choose to help themselves by helping the local community
- Creating abundance of food in food deserts
- Connection to the earth
- Distribution of work among community members instead of one person
- Sharing knowledge
- Offering job opportunities
- Gives you something to do

Challenges:

- Physical space
- Lack of knowledge
- Overwhelmed with where to find information
- Weather
- Local ordinances and zoning
- Nosy or controlling neighbors
- Homeowners Association (HOA)
- Lack of materials, resources, and funding
- Initial investment when starting a food garden
- Budget
- Getting the word out through Social Media / marketing
- Shortage of support / volunteers
- Communication methods

App Features Wish List: Interviewees felt the following features would benefit the app:

- Database for pests and common plant conditions
- Ability to input fruit trees and edible plant identification in your city
- Grow charts for different zones
- Information on companion plants
- Ability to find a nearby garden or fellow gardeners
- Ability to schedule tasks so people can coordinate garden care/maintenance
- Event Notifications
- Ability to message other users and plan a meetup
- Educational courses about gardening, nutrition, etc
- Workshop schedules
- Tool and materials swap
- Ask the Experts option
- Competition about gardening
- Online gardening socializing games
- Volunteer/job opportunities

3 MODELING

Good models emphasize the salient features of the structures and relationships they represent and de-emphasize the less significant details. Because we are designing for users, it is important that we can understand and visualize the salient aspects of their relationships with each other, what they want, with their social and physical environments, and with the products we hope to design.[1]

Creating descriptive models of users is a powerful tool for interaction design. These user models are called **Personas**.

3.1 Audience

Our target audience for this design solution would be: Gardeners of different experience levels, Professional nutritionists, beekeepers, farmers, People interested in starting their own garden, People interested in starting or joining a community garden, People already familiar with permaculture systems, People who want to volunteer their time in a community garden, People who want to eat healthier foods grown in their yards

3.2 Personas

Jane is currently an ordinary, 25-year-old graduate student living in Miami, FL. She also has a part-time job to subsidy her tuition fee. However, it's low-income and not enough for her to live the life she wanted. She has to either cut the social activities or find another job to earn more money. Both options have drawbacks: She has to choose between reducing recreational activities or cutting her sleeping time to do the heavy work with a higher salary. Her goals are getting a good job, having a graduate degree, hanging out with friends, and cook better food. Her frustrations stem from being in the low income bracket and living on a tight budget every month.

Robert is a 35-year-old married man who enjoys spending time with his family and socializing with other parents. He enjoys cooking and hosting BBQs, taking his kid to the park, watching basketball, and browsing for dream vacation deals. Robert loves his office job, but is stressed about money and an irritating new supervisor. To keep his mind off the stress, he spends his limited spare time outdoors and trying out different hobbies. He tries to eat well and is finding ways to keep it low cost, but still taste good. He and his wife want to keep the family healthy and fit. He wishes he knows other dads who share this particular interest while still loving basketball as much as he does. His goals include making time for a personal hobby, socialize with people in the same hobby, be healthier and get in shape, and keep his wife and child happy. His frustrations include worrying about providing a healthy lifestyle for his family and stressing about money.

Sharon is a retired housewife. She holds a doctorate degree in Food Science and Nutrition and was a professor at the University of North Carolina Asheville. She and her husband relocated to Miami three years ago, where she became a guest lecturer at the University of Miami. Sharon is interested in a healthy lifestyle for her family. Her children have graduated college and they do not live at home, but she is very much a part of their lives. Sharon would like to volunteer some of her time and she is interested in community gardens, socializing, the environment, wellness, and is thinking of starting a non-profit and continue educating children. Her goals

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[1]About Face: The Essentials of Interaction Design (p. 61). Wiley. Kindle Edition.

are to create a non-profit organization, make new friends who are the same age and also active, and staying healthy. Her frustrations include being bored of the same food, feeling like her family does not have time for her, and that people around her donâĂŹt take their health seriously.

4 SCENARIOS

- **SCENARIO 1**
  Robert wants to start a garden with people in his area. He gets on GreenLyfe and look for current community gardens in his neighborhood via GPS and/or search. He doesnâĂŹt find any in his area so decides to start one. He posts on the community garden section of the app looking for other who are interested and comes across Sharon and Jane. They chat on the app about ideas and agree to meet up. They use the app to plan the community garden they are creating (including planning out what kinds of plants they want, how they will be planted in the garden via a grid function, what supplies to buy, and wish lists) and also leave it open for other interested members to join.

- **SCENARIO 2**
  Jane just received a plant as a gift from her mother since she mentioned she wanted to add some green in her modest apartment. She forgot the name of the plant her mom had told her so she goes on GreenLyfe to identify the plant. GreenLyfe has a big plant, flower and pest database and once she opens the app and goes into the Plant Identifier option, the app will use the image recognition function to scan the image and it takes a few seconds to search the database. Once the app searches the database, it shows her a list of possible matches. She then recognizes the plant and clicks on the right one. The app shows her the name of the plant, description of the plant, what the pH is, sun and water requirements and care instructions.

- **SCENARIO 3**
  Sharon has a lot of free time and uses the GPS function to find local volunteer opportunities. She finds a local permaculture garden in need of volunteers. She marks herself on the application as an interested volunteer. She marks on the app that she is an expert in permaculture and available to give workshops. She receives a message from the group saying she has been accepted and sees the gardenâĂŹs wish list. She marks off supplies that she can donate to the garden.

5 DESIGN CONSIDERATIONS

The key functions and design requirements that drive this application design are: User Registration, GPS availability, News Feed, Explore Feed, Messaging Capabilities, Notifications, Videos, Add New Garden Locations, Add New Members, Add Checklists, Add Photos, Shareable Content, Tool Swap, Event Creation, Plant Database, Disease Database, Weed Database, User Search, Volunteer Opportunities, and Design Ideas

6 KEY FUNCTIONALITY

What are the key factors that drive your design solution? What should a user be able to do? When (how quickly) can

they do it? User should be able to register, login and check for gardens near his area to help out at, learn or volunteer. If he/she cannot find one, they will be able to create a new garden space (if they have the land) they are able to create a new space, invite people, share the news, ask for items they will need help with, and create an event where they would launch and open the space.

What are key features that the app must have in order for the user to successfully use it? User registration, GPS/location services, News Feed, Explore Feed, Messaging capabilities, Notifications, Video capabilities, Adding new garden locations, making gardens public, adding new members, adding checklists, plant database, disease database, pest database, shareable content, Tool swap, Event creation, user search, volunteering opportunities, etc.

What are possible failure conditions and how are they handled? No wifi, app crashing, no one near your area.

What one-time operations are done at the first execution (i.e., after installation)? Registration, location services.

If the user creates entries of any kind (e.g., bookmarks), what are the limitations? News feed might push them down chronologically

7 PROTOTYPE

Using our preliminary research, we designed sketches and wireframes of the GreenLYFE app to outline what the experience looks like with a low-fidelity representation. We designed userflows for the three key scenarios, which then led to interactive mockups of the app. We were able to user test this application and incorporate the feedback into our protoype.