

Design Proposal Template:

School: Los Nietos STEAM Academy UC Irvine Center **State:** California

Division: Middle School, 8th Grade

Team Members' Names: Andrew Valdivia, Andrew Lim, Angel Leon

Project Title: Should be creative and give readers a general sense of what the project is about and want to read more. (20 word maximum)

Plant-Vitals: A Smart System for Novice Gardeners with Recommendations, Monitoring, and Maintenance.

Community Challenge Being Addressed: Describe the community challenge that you will attempt to address with your proposed solution. (75 word maximum)

Our community lacks access to affordable local organic fruits and vegetables. As a result, people in our community attempt to start a garden in their homes and communities to improve their nutrition, mental and physical well-being, and to create a natural escape from their dense urban neighborhoods. Unfortunately, many people fail because they lack gardening knowledge. This leads to loss of money, time, and motivation.

Community Research and User Identification: Explain the process used to identify the community challenge and select your user. Include any research done to identify issues in your community and understand which groups face challenges because of these issues. (150 word maximum)

Initially, we wanted to help our peers to raise an aesthetic and edible garden. We identified the community challenge by using Google forms to survey students in our school to find a problem they wished someone could solve. From our survey, we learned that 134 students in our community attempted to start a home garden, for food or greenery, but failed 72% of the time.

After surveying parents/guardians at an open house, we soon discovered they were also failing at a similar rate as children.

To understand why our users fail, we asked them: “What caused your plants to stop growing?” 34% said they didn’t water it enough, 36% blamed too much watering, and 30% were unsure about the cause.

Based on this information, we identified novice gardeners as our target audience who needed a tool to monitor their garden’s conditions.

User Profile: Provide a detailed description of your selected user. Include information about challenges they face, how those challenges impact their lives, and specific project needs based on user feedback. (150 word maximum)

Using our Google survey results, our selected users are novice gardeners of all ages who want to start their own home garden. These people lack the knowledge of proper plant care, such as watering, sunlight, and environmental needs. This often causes plant loss, discouraging new gardeners. This results in them purchasing produce, plastic plants, and even going so far as replacing their lawns with artificial grass. This leads to a loss of money and care for environmental growth.

After identifying our target audience, we interviewed potential users to determine their needs. Many teenagers requested an easy-to-use device with clear directions. Parents wanted a standalone device that could display information. To not be restricted to only plants, many users asked for Plant Vitals to support and suggest different types of greenery. Lastly, users requested an automatic watering system to resolve their common problem of watering issues.

Project Goals: List your project goals and explain how these goals will address the community challenge. Project goals should define the desired outcomes, not specific features of the proposed solution. (150 word maximum)

1.Prevent Plant Loss: Novice gardeners will use real-time information to grow healthy plants and fresh produce. This will support our community's efforts to grow organic food and bring needed green space into urban areas.

2. Match Users with the Right Greenery Based on Environment: Increase gardening success by helping users select plants that will thrive in the current environmental conditions such as sun exposure and temperature, which may be factors users cannot control.

3. Make Gardening Accessible to Everyone: Help novice gardeners gain knowledge and confidence in successfully growing greenery in their home and community regardless of their access to expensive technology or prior gardening experience.

4. Support Variety of Plants: Ensure users are not restricted to caring for only one type of plant by helping novice gardeners to discover new varieties suited for their environment, thus expanding users' gardening opportunities.

Proposed Solution: Describe your proposed solution, including any innovative and unique features, and explain how this solution will address your users' needs and the challenges they face. (150 word maximum)

Unlike other devices which only measure information for plants, Plant Vitals can independently measure, analyze, then recommend plants to the user. Our solution for the community challenge is a unique, all-in-one gardening device that will assist novice gardeners to achieve success. Our device provides support for a variety of greenery, such as trees, cacti, and even grass.

First, Plant Vitals checks the plant's soil moisture, sunlight, and temperature of the area. Using this information, Plant Vitals displays what the plant needs to grow healthy. Second, Plant Vitals can use the same data to recommend plants that would do well in this specific environment. Additionally, Plant-Vitals continues to measure vitals of the plant throughout the day to provide additional refined recommendations over time.

Lastly, to solve the common problem of improper watering, Plant Vitals also includes an integrated automatic watering system for situations such as vacation or forgetfulness.

Initial Design: A single graphic of your first design idea with key features adequately labeled. It should be easy to understand, and the reader should have a general understanding of how the prototype functions by looking at the graphic. Max size 8.5" x 11". May contain up to 4 views of the design.

