The Problem

• Develop an administrative dashboard website for monitoring and managing Urban Stalk's domed hydroponics system
• Traditional methods for growing crops are both time consuming, and uncertain due to external factors
• Current methods do not utilize machine learning or optimization techniques to improve crop yield

Project Goals

• Provide control of crop growing conditions
• Provide live sensor readings
• Provide data visualization of historical dome and water table environmental data
• Provide alerts and notifications
• Prioritize the use of desktop browsers with mobile support

Growing Conditions Design

• User creates growing condition profiles for plants they wish to grow
• The information will be the target value for the sensors as part of the dome
• The dome system will automatically grow the specified plant with no supervision unless errors arise

Notification Design

The notification system is designed to provide users with crucial data regarding their dome environment. Such notifications would include:

• Ability to alert to deviations from optimal growth parameters
• Ability to alert on sensor issues
• Ability to alert on dome malfunctions
• Ability to notify users of upcoming events such as harvest dates

Future Work

• Implement a user authentication system for multi-user access
• Improve the performance between the frontend and the backend API calls
• Automate the deployment and testing of future website updates to save time

Data Visualization

• Implemented using Charts.js library
• Environmental conditions are plotting against time to provide a historical view
• Chart views can be displayed for the last 7, 30, or 90 days
• The dome data can also be exported into a CSV file for further analysis

Victoria BC Dome

This dome is located at the University of Victoria

Temperature 20.2 °C, Humidity 50%, Luminous Flux 5951 W

21 days remaining until harvest!

Water Table #1

Water Temp 20.2 °C, Acidity 50%, Nutrients 5951 W

Most recent sensor reading time:

Last 7 Days, Last 30 Days, Last 90 Days

Water temperature low notification sent!