Dendro Dawgz

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Project Intro

Problem Statement

- When does a tree grow? Does it grow most during a specific season or time of day?
- Dendrometers (developed by TOMST), automatically measure a tree's growth by analyzing its diameter, but are very difficult to access and install
- The team's goal is to develop a mobile application that can read and display the data from the dendrometers

Clients

- Dendrometer installers and data collectors
    - Ecologists
    - Tree physiologists
    - NAU
        - ECOS[s]
        - SICCS

Sponsors

Prof. Andrew Richardson, SICCS/ECOSS (Andrew.Richardson@nau.edu)
Prof. Mariah Carbone, ECOSS (Mariah.Carbone@nau.edu)
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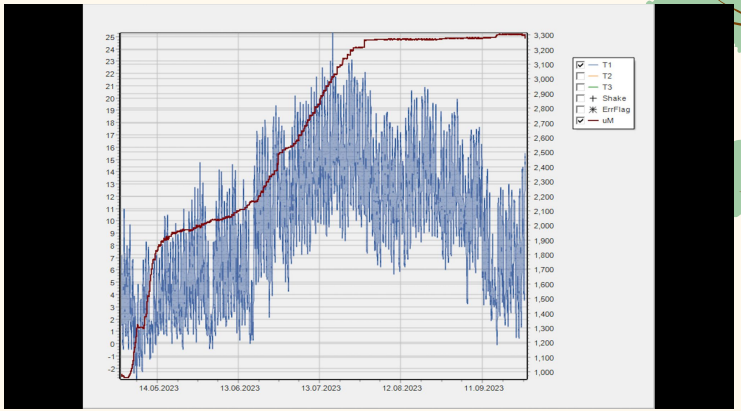
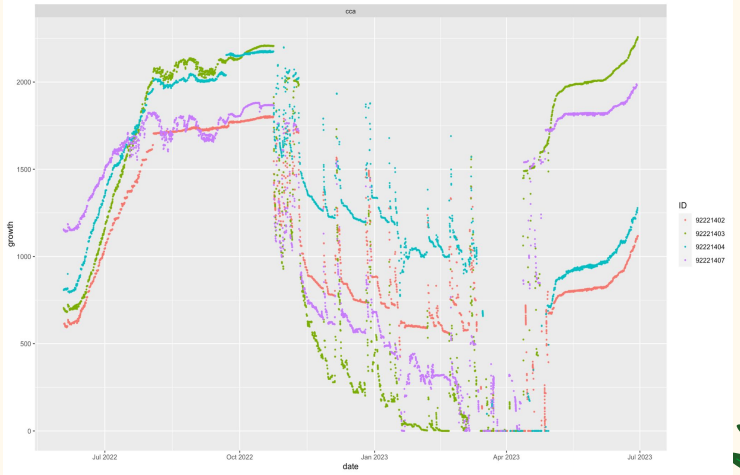
Problem and Solution

- Have to carry a laptop to the top of a Redwood tree
  - Develop mobile application instead
- 2 handed use, with a long download from an awkward cable attachment
  - 1 handed use, much easier to hold cable
- Can only view data from one dendrometer at a time
  - View several dendrometers, trees, or sites at a time
- Difficult to share data with others
  - Easy export to the cloud, with master files and metadata



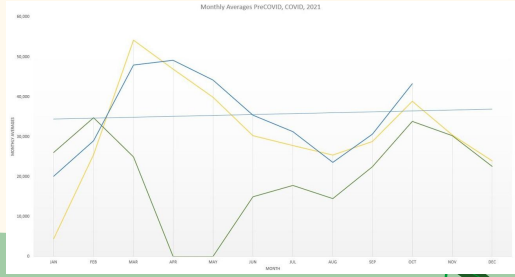


Plan for Development

- Meet weekly with the clients to flesh out design and vision
- Investigate backend that can potentially allow for cross platform app
- Determine statistical analyses and graphs to display
- Determine most optimal cloud export for sharing data
- Obtain hardware capable of developing macOS software
- Develop prototype capable of reading in data from dendrometer

iOS

android



Conclusion

- Build a cross-platform application to read data from a TOMST Dendrometer for our clients
- There will be challenges in the backend trying to interact with the TOMST device, as well as hooking the backend into the frontend for iOS devices
- Where our clients would previously need to lug windows laptops high into the Redwoods, now they will only need to carry their mobile phone
- Others with a vested interest in tree growth statistics would find this software useful since it provides the ability to use a highly portable device to take measurements
- In addition, the cross-platform capability could be extended to make the software available on practically any other device