

SmartAg Foundation Component Plan

Create an architecture and reference set of open functionality that can be snapped together that allow gardening or farm or livestock data to be collected, automated and manual actions to be taken based on that data, and models/analytics to be created, improved, and shared based on that data.

Step-by-step guide

Starting with scenarios/use cases/problem statements, a solution will be described. This solution will be decomposed into standalone, re-usable **reference** components that can be worked on in isolation and in parallel, and then combined into both a desired solution and into other, unanticipated solutions due to the generalized nature of the components. Naturally, all actual and de-facto standards should be utilized and/or created during this process.

1. [Define and create core systems](#)
 - a. [Edge Node](#) - system that connects to devices and extends network
 - b. [Configurator](#) (pairing assistant) - portable interface to assist in device on-boarding
 - c. [Edge Gateway](#) - central compute system on farm
2. [Edge Device](#) - (fixed-function) system that collects data or provides actuator
3. [Plant Record](#) - standard data structure for capturing plant lifecycle data
4. [Plot Record](#) - standard data structure for capturing data about a single location where plants are growing
5. [Powdery mold on plants](#)
6. [Plant Identification Database](#) - standardized and global resource for storing attributes for all plant types
7. Events or Triggers
8. Actions or Desired Results
9. Workload Configurations and Categorization
10. Policy Creation and Categorization
11. Reporting
12. Analytics or Machine Learning
13. [UI \(User Interfaces\)](#)

Architecture Design

First session: July 26, 2022

Attendees: [Joe Pearson](#), [Shaun Greene](#)

Recording: [60 minutes](#)

Diagrams: [app.diagrams.net](#), ask for access

Second session: August 23, 2022

Attendees: [Joe Pearson](#), [David C. Martin](#), [Shaun Greene](#), David

Recording: [48 minutes](#)

Topic: Use Case: Watering needs of peach orchard in TX



Third session: September 6, 2022

Attendees: [Joe Pearson](#) and [Jeff Lu](#)

Recording: none

Topic: Work breakdown of [Scenario 1B](#), documented in [GitHub Issue #1](#).

Fourth session: September 20, 2022

Attendees: [Joe Pearson](#), [David C. Martin](#), [Charlie Lindahl](#), Luke Schantz

Recording: (started late) [16 minutes](#)

Topic: Visual analytics, camera devices, use cases

Fifth session: October 4, 2022

Attendees: [Joe Pearson](#), [David C. Martin](#), [Jeff Lu](#), Luke Schantz

Recording: [57 minutes](#)

Topic: Installing and configuring "hzn-cli" container (which will *eventually* be used to connect sensors to data collection platforms)



IMG_3287.MOV



IMG_3290.MP4

Sixth session: December 6, 2022

Attendees: [Joe Pearson](#), [David C. Martin](#) , [Charlie Lindahl](#) , [Jeff Lu](#) , Dr. Daniel Eberz

Recording: [32 minutes](#)

Topics: DLR code contribution, QR Code Generator



Related articles

- [SmartAg Foundation Component Plan](#)
- [EdgeLake - KubeArmor Integration](#)