Portland State University Computer Science Capstone
Spring Term Presentation

Plantalytics
Precision Agriculture
Capstone Team

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Sponsor Team

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What is Plantalytics?

- An Internet of Things solution
- Allows clients to remotely monitor vineyard conditions
- Tracks three environmental conditions:
  - Temperature
  - Humidity
  - Leaf wetness
- Detects:
  - Powdery mildew
  - Frost risk
  - Harvest time
Requirements Gathering Process

- Minimum Viable Product
  - Beta deployment July 1st

- MVP Requirements
  - Account Management
  - Map of vineyard
  - Real-time updates
  - Store past information in a database
System Overview
Heat Map
Architectural Design Process

Document Overview

- Use-Cases
- High-Level Implementation Procedures
- Classes & Public Methods
- Technology Standards & Pseudocode
- Physical Component Overview
- Quality Assurance
- Future Plans & “Moonshots”

Main Stack

- Front-end: HTML/CSS, JS & jQuery
- Back-end: Python & CQL
- Microcontroller: C++

“4+1 model” image source: https://commons.wikimedia.org/wiki/File:4%2B1_Architectural_View_Model.jpg
Infrastructure & Workflow
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ISSUE 12: adding the wows

at least 20% cooler

konata committed 11 minutes ago

@@ -5,7 +5,7 @@ Technical and planning documentation for the Plantalytics project.

## License

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-Kelly Ledford, Michael Limb, Steven Ngo, Eric Turley.
+Kelly Ledford, Michael Limb, Steven Ngo, Eric Turley, Konata Izumi.
Infrastructure & Workflow

TESTING....
Infrastructure & Workflow

This branch has no conflicts with the base branch
Merging can be performed automatically.

 Merge pull request or view command line instructions.
Infrastructure & Workflow

TESTING....
we must up the wow factor

- wowier

testing ok~~
Infrastructure & Workflow
Infrastructure & Workflow

Issue branch has been merged back into develop branch. Note: Rapidness of steps not representative of our actual waterfall process.

Demonstrated infrastructure: Slack, git, GitHub.

Other infrastructure:
- Host: Google Cloud Platform
- Database: Cassandra
- Documents store: Google docs
- Backups: Local storage across most of team
Risks & Risk Management Strategies

Risks

● Identification
  ○ Software (Web App)
  ○ Hardware (Field Equipment)

● Prioritization
  ○ High-Impact Hardware Risks

● Monitoring
  ○ Track
  ○ Identify
  ○ Reassess
  ○ Modify

Risk Management Strategies

● Avoidance
● Control
● Acceptance
● Transfer
Verification & Validation

Mixed-method approach

- Requirements and acceptance criteria
- Unit tests
- Test automation
- Code reviews
- Integration tests
- Client feedback
- End-user observations and interviews
Methodology: Iterative Waterfalls

● Take the best of both:
  ○ Waterfall: completely functional project at each foot
  ○ Iterative: each iteration adds functionality and improves the code base

● Full development cycle for each iteration
  ○ Requirement gathering
  ○ Documentation
  ○ Design
  ○ Implementation
  ○ Testing
Schedule: Day 1 - MVP

May 2nd - June 5th

- Documentation Creation
  - Weeks 1 - 4
- Architectural Design
  - Weeks 3 - 5
- Iteration Planning
  - Week 5

Today - MVP

- Implementation
  - Weeks 6 & 7
- Testing / V & V
  - Weeks 7 & 8
- Polishing
  - Week 9

Total time: ~9 weeks

MVP: JULY 1st
Tentative Schedule: Post MVP

Total time: ~8 weeks

Iteration 2 : July
- Documentation & Design
  - Weeks 1 & 2
- Implementation
  - Week 3
- Testing / V & V
  - Week 4

Iteration 3 : August
- Documentation & Design
  - Weeks 1 & 2
- Implementation
  - Week 3
- Testing / V & V
  - Week 4

End Date: August 29th
Questions?