A World of Plants

Funge

Our Story

JANUARY 2016

Our Humble Beginnings

Team Funge started off as a group of 4 students taking Software Engineering (COS301) at the University of Pretoria.

MAY 2016

We Meet Our Clients

Amazon Web Services issued us with a (very broad) challenge: Use their IoT service in a smart, innovative way.

Our Story

JUNE 2016

An Idea is Born

The number of people involved in agriculture has dropped significantly in recent years. South Africa needs more people interested in plants. We knew what we had to do: Make Plants Fun!

JULY 2016 - OCTOBER 2016

Hard Work, Good Fun and No Sleep

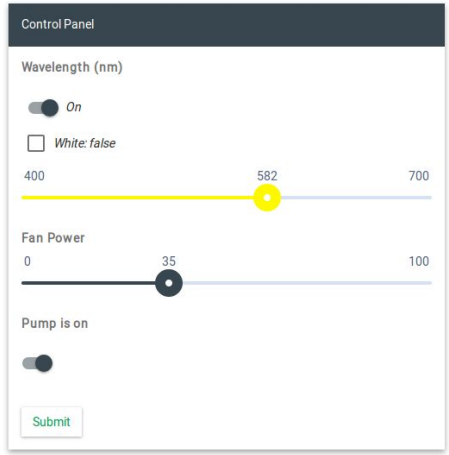
Our scope grew... and shrank. We learnt to hate and then love Angular. We were awed by the power of AWS. We discovered that we knew nothing about circuits. We bought some spinach. We made good and bad decisions, but we never stopped learning. And at the end, we delivered something we are all proud of.

Brief Explanation

- Remote, real-time **plant monitoring** and **environment control** system
- **Cloud** based, **micro-services**, Platform as a Service (**PaaS**) architecture
- Main service: **IoT** hardware platform managed by an **event based** cloud processing service
- Front-end is implemented as an **MVC** architecture

Wow Factor

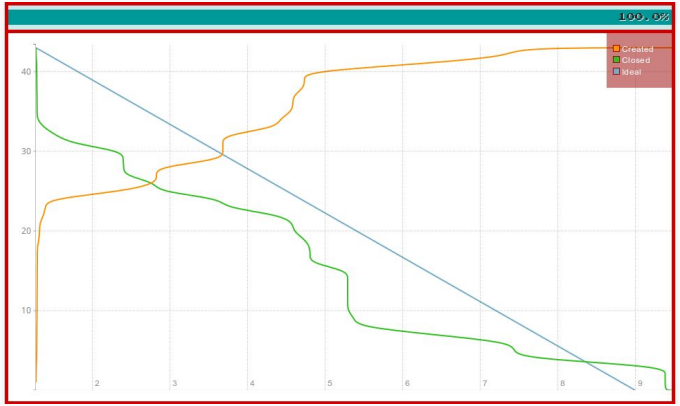
- Environment monitored and controlled in real-time using a cutting edge IoT hardware platform and cloud based services
- Real-time, interactive, two-way communication between front-end and hardware

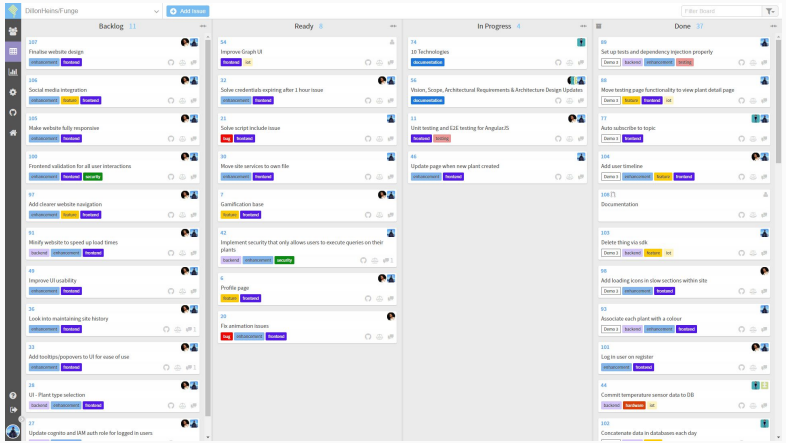


Demo

Software Engineering Principles

- Agile approach
  - scrum boards
  - burndown charts
- Continuous Integration and Automated Testing
  - Travis CI
  - Maven - JUnit and Spring
  - E2E testing (Protractor and Karma)
- Version Control
  - Git





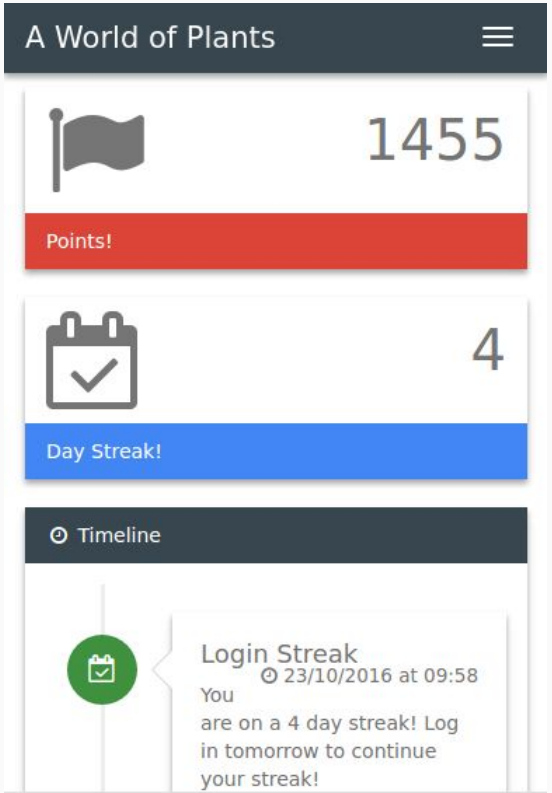
Architecture

- The system uses a cloud-based, serverless, event-driven micro-services architecture
- Platform as a Service (PaaS) by utilizing Amazon Web Services

- IoT platform
  - MQTT
  - Subscribing and publishing to topic streams
  - Rule-based gathering and sorting of incoming streams

Mobile

Fully reactive site, designed to work on all devices



Future Expansion

- Complex Event Analysis
  - Discover and track trends
- Machine Learning

- Gamification
  - Social aspects
  - Leader boards
  - Friends etc.

- Designed to be expandable
  - AngularJS components
  - Events driven processing rather than monolithic server

Questions

Please ask us anything!