



# SmartSettia

SmartSettia provides  
remote monitoring and  
control of poinsettia  
covering systems using  
mobile devices.

# Our Team



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COMPUTER SCIENCE



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COMPUTER ENGINEERING

- ▶ Sponsor: Dev Shreshtha and Bob Tripepi
- ▶ Advisor: Bruce Bolden

# The Photoperiod Problem

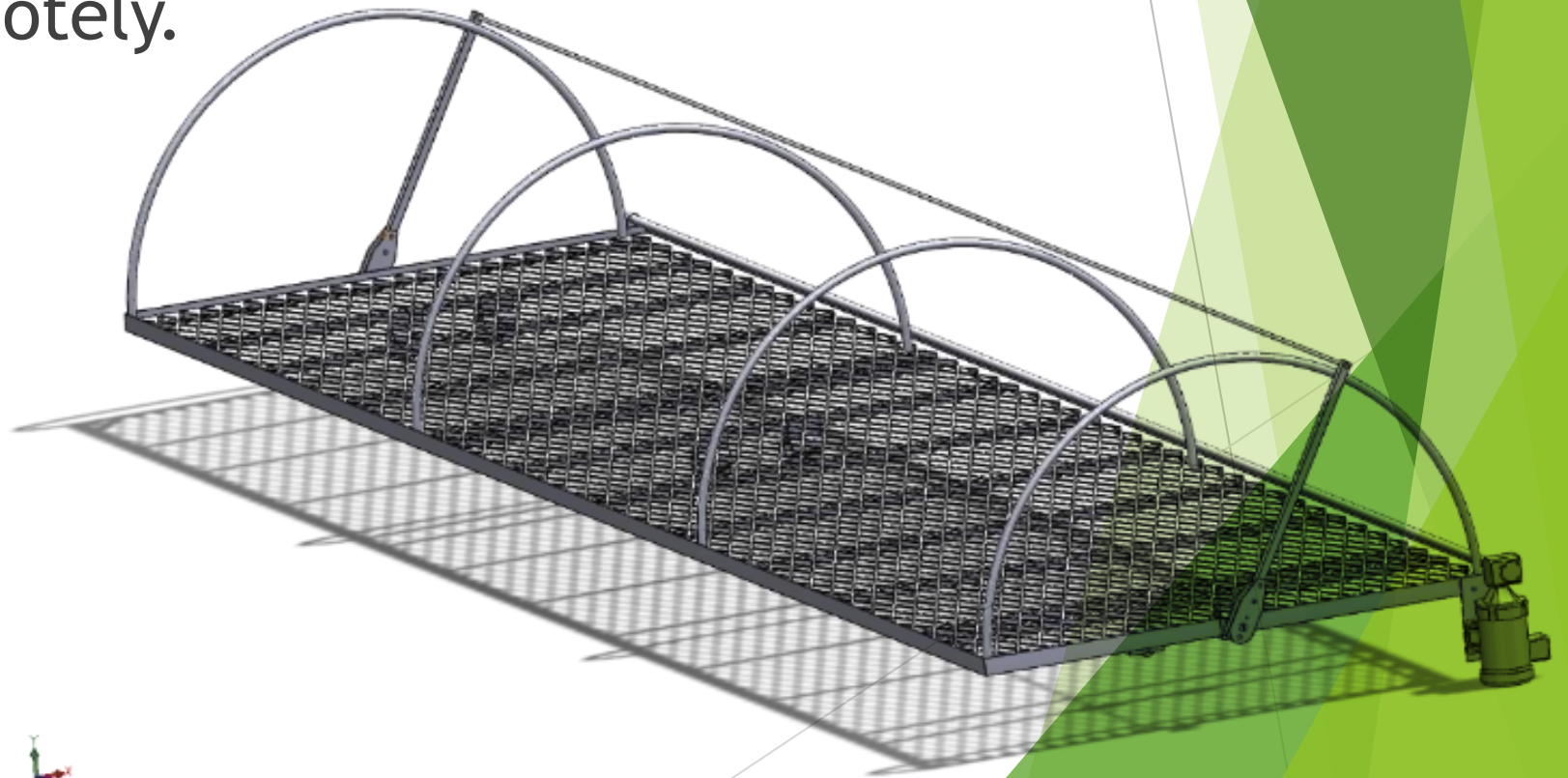
- ▶ Controlling photoperiod (and night temperature) is essential in precise programming of poinsettia market date and final height.
- ▶ The Sixth Street Greenhouse has streetlamps as well as internal lighting that invades the room where the poinsettias are stored.
- ▶ To mitigate the effect of this stray light, the students of the Plant & Soils Science Club have to manually cover and uncover the poinsettias every day.



(image © P. Allen Hammer, Purdue University)

# Limitations of the Old System

- ▶ No feedback for if system is open or closed.
- ▶ Unable to change covering schedule.
- ▶ No notifications of failure.
- ▶ Cannot control remotely.





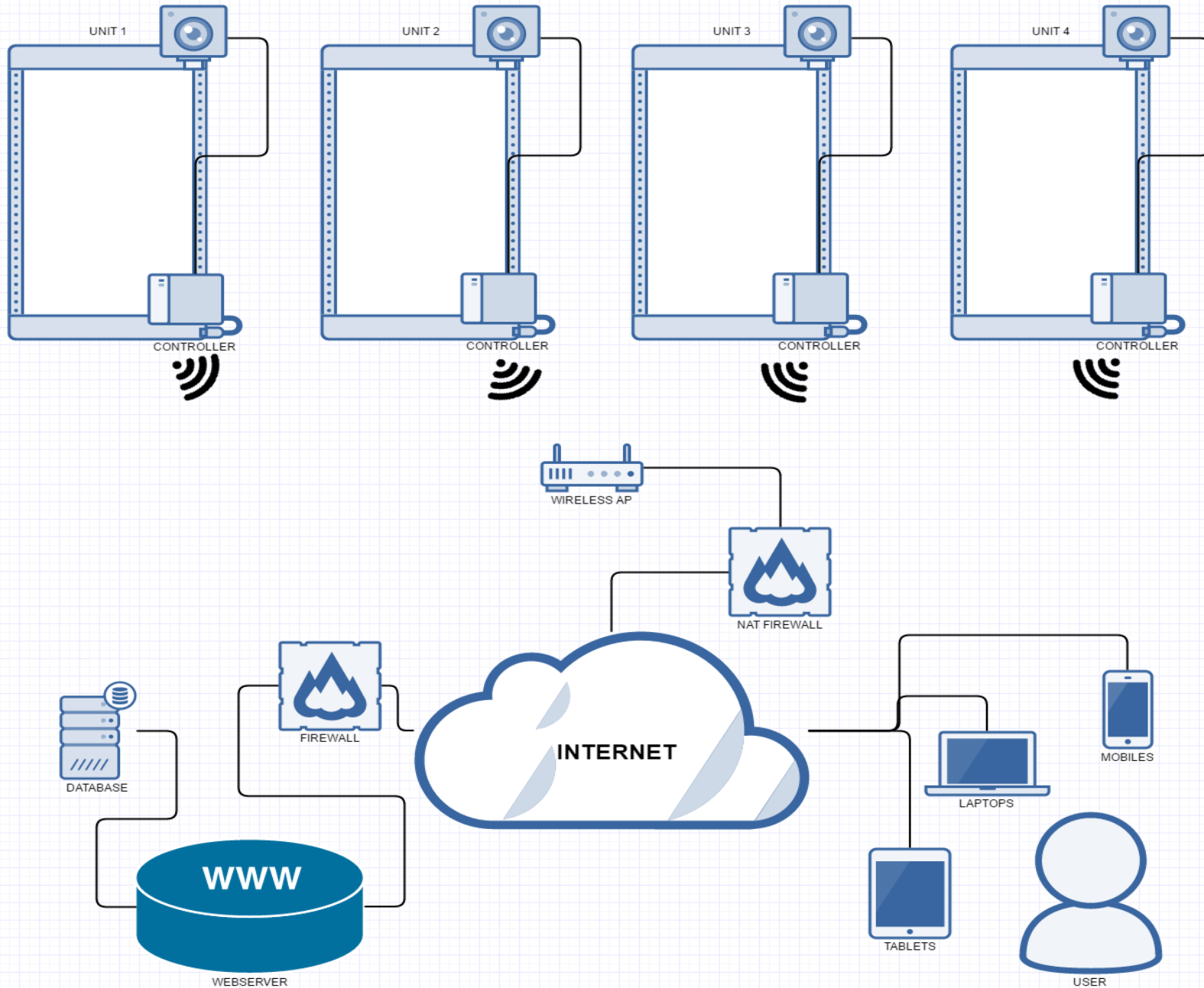
# Design Goals

In addition to automatically covering plants, the system must:

- ▶ Be simple to use on both mobile and desktop devices.
- ▶ Have a way to visually confirm if open or closed.
- ▶ Text notifications in the event of failure.
- ▶ Allow for a custom schedule.
- ▶ Log all actions and sensors.
- ▶ Operate in a hot and humid environment.

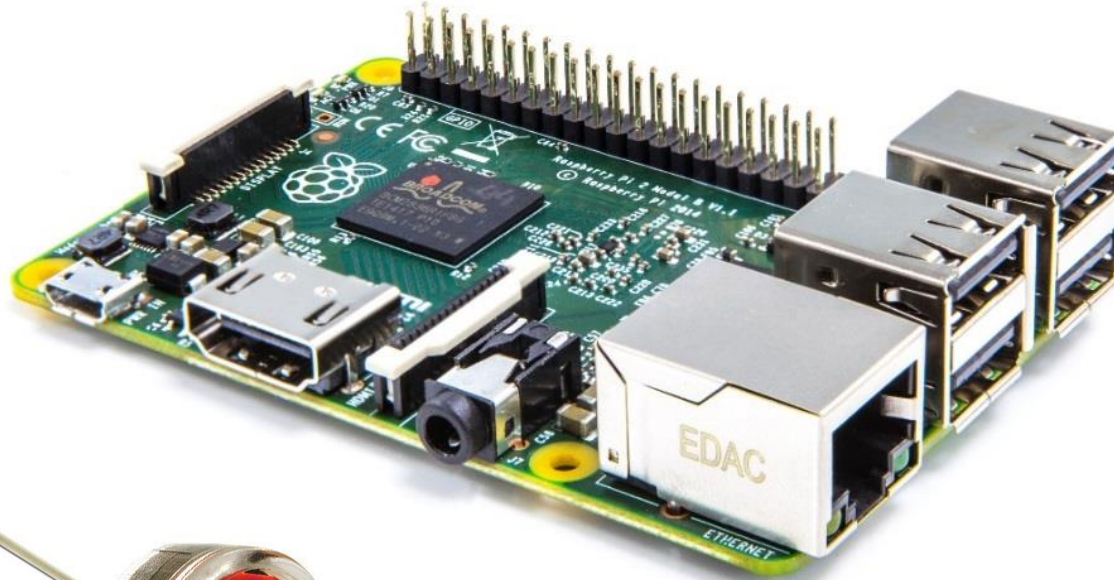
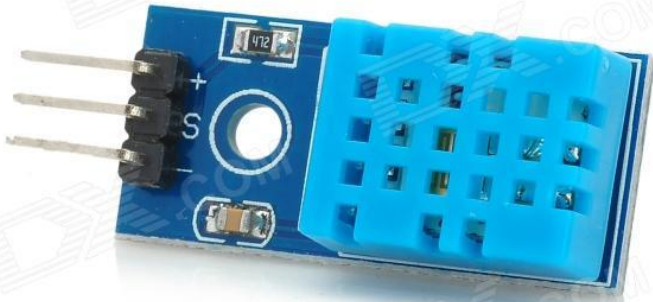


# System Design



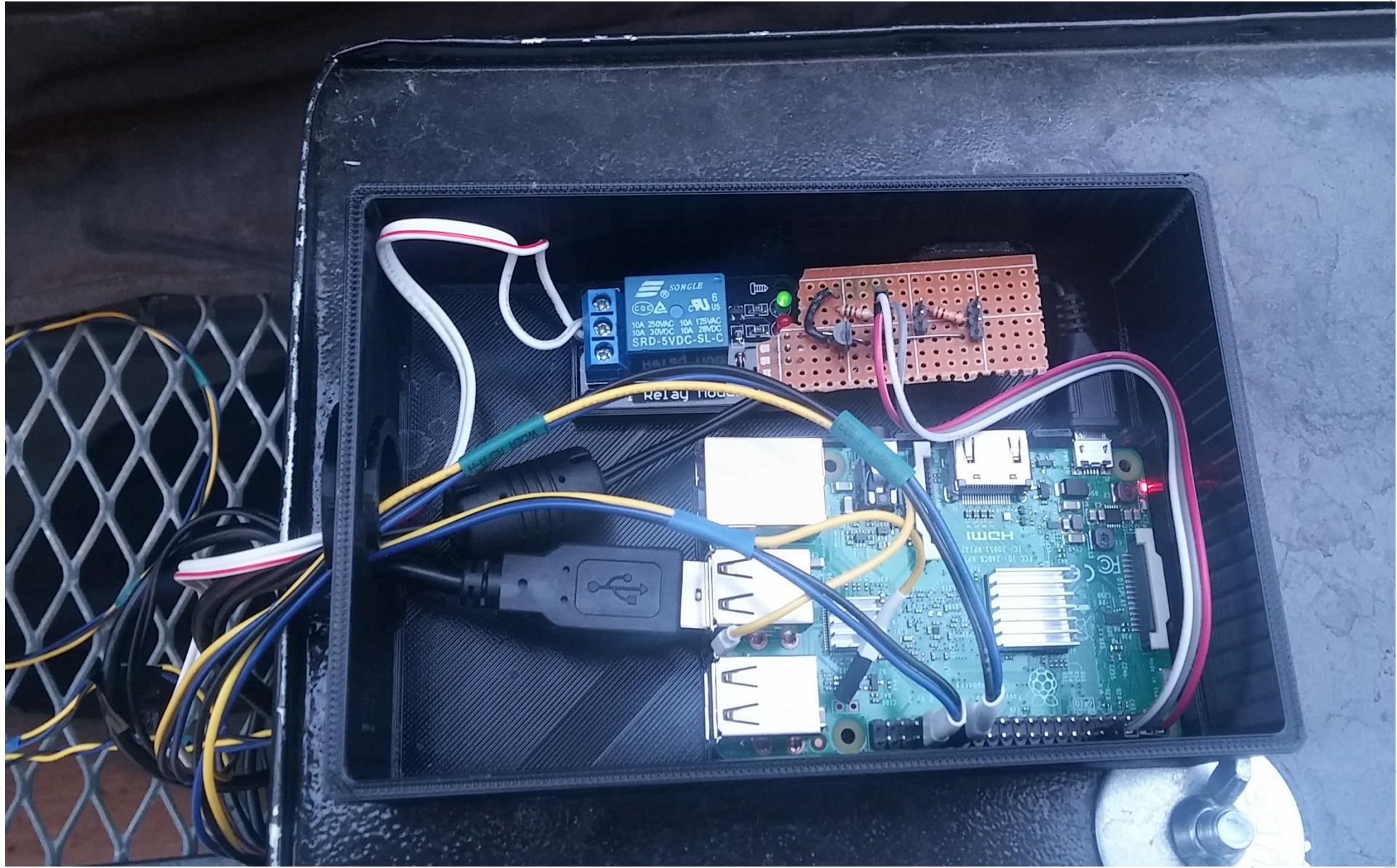
# Hardware Implementation

ELP



Raspberry Pi 3 Model B









# Technology Stack





# Website

SmartSettia

Home Help Manage Dashboard Joe Vandal

Your Poinsettia Management System

SmartSettia is a poinsettia life-cycle management system that couples the flexibility of IoT devices with the power of the cloud. Control units can be securely installed and controlled anywhere with an internet connection.

Login

Register

SmartSettia

University of Idaho

Location: 6th Street Greenhouse

engr-smartsettia-2

Open Time: 8:00am Close Time: 6:00pm

Download Image

Name	Default	Controls
engr-smartsettia-1	Online	<div><div>View</div><div>Open</div><div>Graphs</div><div>Lock</div><div>Edit</div></div>

## Plant People Love It!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

— Famous plant-human hybrid

SmartSettia

Home Help Manage Dashboard Joe Vandal

University of Idaho

Location: 6th Street Greenhouse

engr-smartsettia-1

Open Time: 8:00am Close Time: 6:00pm

SmartSettia - 2017-12-01 01:27:10 UTC

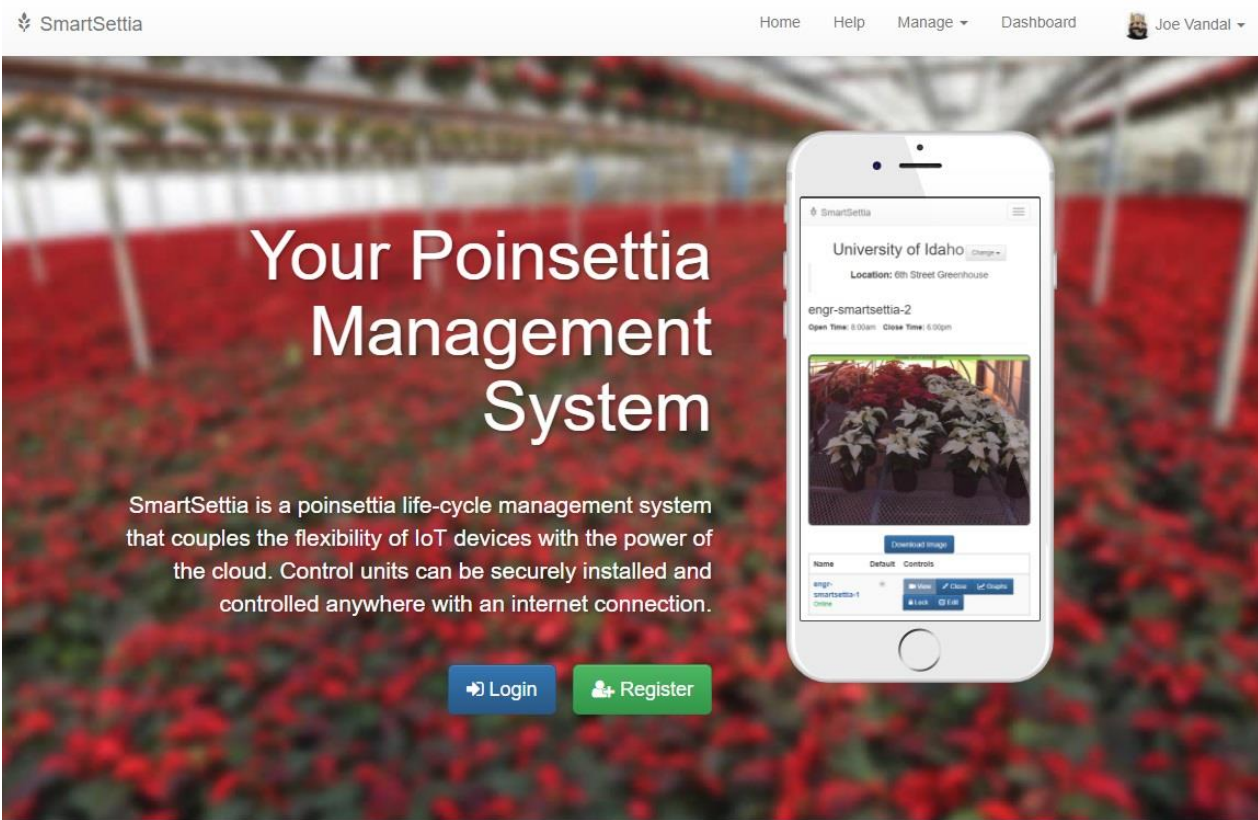
Download Image

Name	Default	Controls
engr-smartsettia-1	Online	<div><div>View</div><div>Open</div><div>Graphs</div><div>Lock</div><div>Edit</div></div>



# Benefits of the New System

- ▶ The ability to monitor and control remotely save trips to the greenhouse.
- ▶ Increases caretaker productivity by allowing them to keep track of things from a mobile device anytime and anywhere.
- ▶ Saves money and reduces risk by detecting and reporting problems early on.



The image shows a screenshot of the SmartSettia web application. The background is a blurred image of a greenhouse filled with red poinsettias. The main heading is "Your Poinsettia Management System". Below it, a paragraph describes the system: "SmartSettia is a poinsettia life-cycle management system that couples the flexibility of IoT devices with the power of the cloud. Control units can be securely installed and controlled anywhere with an internet connection." At the bottom of the main content area are two buttons: "Login" and "Register". On the right side, there is a smartphone displaying the mobile version of the app. The app interface shows the "University of Idaho" location, a "Change" button, the device name "engr-smartsettia-2", and "Open Time: 8:00am" and "Close Time: 6:00pm". Below this is a photo of potted poinsettias and a "Download Image" button. At the bottom of the app screen is a table with columns "Name", "Default", and "Controls". The table has one row with the name "engr-smartsettia-1" and status "Online". Below the table are buttons for "View", "Close", "Get Status", "Lock", and "Edit". The top navigation bar of the web app includes "Home", "Help", "Manage", "Dashboard", and a user profile for "Joe Vandal".

Plant People Love It!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

— Famous plant-human hybrid

# Questions and Feedback

**“Tell us what  
you think!”**



- ▶ Thank you for attending our technical presentation!
- ▶ We welcome any questions or feedback you can provide.
- ▶ You can also e-mail the SmartSettia team at:
  - ▶ **[engr-smartsettia@uidaho.edu](mailto:engr-smartsettia@uidaho.edu)**