

CASE STUDY

Smart Agriculture - Smart Light and Environmental Control for Indoor Farming



SpringCT partnered with a manufacturer of high-intensity indoor lighting in North America to help them emulate the natural movement of the sun in indoor farming environment. The objective is to provide the plants with lighting experience similar to open outdoor farms.

The plants in greenhouse shades are grown in controlled conditions and the light manufacturer wants to simulate the natural sunlight state for the indoor plants.

SpringCT developed an application for a manufacturer of high-intensity indoor lighting and environmental control equipment for indoor farming. The application was developed as a Vera controller app/plugin. It allows users to modify light intensity based on the time of day to simulate sunlight. It also allowed the temperature and humidity in the indoor farm to be maintained at a certain level. This allowed the farmer to remotely control the indoor environment of the farm depending on the needs of the plants. The app was designed to create an ideal environment for the plants to grow in, which would result in higher crop yields. By having the ability to remotely control the environment, the farmer was able to save time and money by having the plants grow in optimal conditions without having to manually adjust the environment.

Product Features

- Control the light intensity
- Control humidity and temperature
- Remote device configuration and control
- Support for efficient communication in resource-constrained environments
- Real-time remote troubleshooting and monitoring
- Battery health and power management capabilities

Key Technical Achievements

- Designed and implemented a highly modular indoor farm environment control App
- Enabled easy configuration and control of lights and sensors
- Developed remote diagnostics and monitoring tools for efficient field operations
- Optimized communication protocols for constrained devices and networks

Technology Used

- Vera Controller
- Lua Scripting
- Java

Results

- Successfully achieved light, humidity & temperature control
- Better environment control in greenhouse shades
- Better control on plant quality and yield

Conclusion

SpringCT's technical expertise and modular design approach helped the client enable their smart indoor lighting solution for precision control. This ensured better climate control and higher yield in indoor farms.