Overview

- Proof of concept designed to improve on an existing system and show that one can maintain the circadian rhythm of both astronauts and plant life using a specific wavelength of artificial light.
- Accessible terminal with a GUI unifies system.
- Visual and audible warnings for degradation in light intensity as well as color spectrum shifting.
- Easily serviceable parts including a 3D printable fixture, cut to size LED strips, and solder butt connectors.

Improvements

- More fixtures have been added and are coalesced into one ecosystem.
- Feedback systems provide live color and brightness correction.
- GUI provides soft controls which can be accessed remotely from the fixtures eliminating the need to adjust each one.
- The LED fixtures used to grow plant life are an extension of the human habitat with higher wattage LEDs.

Future Tasks

- GUI with access to parameters such as brightness, hue, and the ability to save profiles and enable communication between all devices.
- A 3D printable control center that can house both the touch screen for the GUI and the system of relays.
- Test RGB and LUX sensors and calibrate them with an environment similar to the ISS.

Meet the Team


User Interface

- Allows the user to select from an automated or manual lighting control.
- The user can adjust brightness, light time shifting, and a way to store these settings under a unique name.

3D Printable Model

- Scalable AutoCAD model that can be printed at the ISS.
- Model features a slat for an acrylic diffuser, as well as thru-holes for neat cable management.
- 3D model is a variation of the existing fixture on the ISS.

Installation currently in use on the International Space Station.