LED Button Map Museum Guide

# Usage instructions:

There are two power cords plugged into 120V outlets above the display. They should both be unplugged (or the outlets turned off) if you want to power down the display. The display will automatically log its last state, and resume where it left off on next power on.

When the display is first powered on, a red light will crawl along the entire display to test that every light is working. After this completes, the display will enter normal operation mode.

In normal operation mode, the buttons may be pressed. After pressing a button, the corresponding region will begin blinking rapidly. The speed of the blink will slowly decrease over 40 minutes, at which point it will stop blinking again. Re-pressing the button during this time will reset the timer, and return the blinking to the fastest speed.

Pressing a button will also increase the total brightness of that region. Over time, as the button is pressed more and more, the region will have additional lights turn on, the lights will get brighter, and then eventually they will all fade to red. When every light in a region is completely red, that region has reached its maximum. It will still blink when pressed, but cannot get any brighter. Currently this requires 200-400 button presses per region. (This means to make the entire map red with all the lights on would require 77 regions \* approx. 400 = 30,800 button presses).

Changing any of the numbers (blink speed, blink timer, or maximum presses per region) would require a minor software update, but a museum personnel could be walked through the process.

# Museum Controls:

A USB cable is tucked into the top of the panel, and can be accessed by the museum for additional options. By plugging this into a laptop, commands may be sent through a serial monitor to make minor changes or request information without resetting or reprogramming anything. Any serial monitor will work, but if you’ve never used a serial monitor before I would recommend the one built into Arduino studio, as it is free, fast to set up, and easy to use. If frequent use of this is required, I would advise obtaining a longer USB cable (USB micro) or a USB extension cable (Type A male to Type A female), and tucking it out of sight so that a ladder is not required to access the serial port.

The following single character commands can be sent (without the quotes)

“R” performs a full reset, returning all regions to a button count of zero, and returning the lights to a dim green. This is irreversible, so make sure any data you want has been downloaded beforehand.

“?” will cause the device to print out every region, along with the number of times the corresponding button has been pressed. PLEASE NOTE: While the core code for this functionality exists, it was not implemented in the current version running on the panel due to time constraints. If this functionality is something the museum desires, it could be easily added via a minor software update. Museum personnel could be walked through this update.

“S” saves data. This is redundant, data is always saved on power down.

# Troubleshooting:

Due to the construction of the panel, which was not provided by me, the panel buttons and lights are non-accessible and therefore non-serviceable. The buttons are rated for greater than 100,000 presses each, and the lights are all LEDs that should have a lifetime of > 10 years. In the event that you suspect a light to not be working, power cycle the panel and see if the light turns on during the initial animation. If you suspect a button to not be working, press the button and see if the corresponding region begins blinking. If any part of the electronics is verified as not working, you will need to contact me and we will need to formulate a plan based on the extent of the damage and the available options.

# Maintenance:

Basic cleanliness: the outer face of the panel (buttons, lights) can be cleaned or dusted, although no harsh solvents should be used. Contact the artist with regards to limitations on cleaning the painted surface. The back of the panel should not require cleaning, but could be blown off with dry air if the dust is undesirable.