GTT Designer Control Panel Example

A GTT Designer example for Sliders, Toggle buttons, Animations, and bar graphs

Application Note

Revision 1.0

Introduction

This example demonstrates the power of the Matrix Orbital GTT series, when combined with the GTT Designer software tool. With the processing capability of the GTT display and the visual editing environment of the Designer, a beautiful and functional user interface can be created for any controller.

Connections

To design this example, a GTT70A-TPR-BLS-B0-H1-CT-VPT was connected to a 5V power source via its power jack, and to a PC through its Mass Storage USB header with an external USB cable (EXTMUSB3FT). To provide control, an Arduino Uno was connected to the I2C header of the GTT70A with a BreadBoard Cable (BBC), and to a PC via a USB cable.

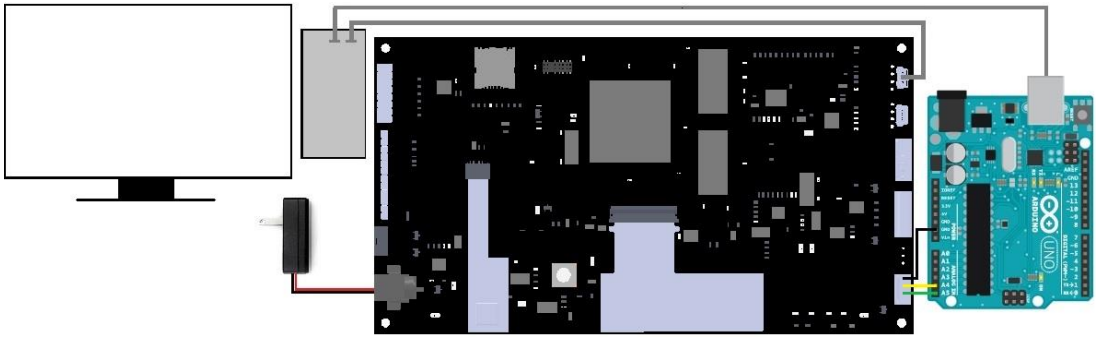

Figure 1: Control Panel Example PC, Arduino, and Power Connections

Design

For this example, multiple screen designs are included, allowing for multiple features to be integrated, and explained. Each screen has its own function and purpose. The first screen allows all assets to be loaded onto the GTT, the second provides the user the ability to control the system that is running, and the third gives the user the ability to adjust the GTT's screen settings.

Figure 2: GTT Control Panel example

Upon startup, the user will be greeted by a loading screen. Here, all the assets required for the GTT project are loaded into their buffers. Once the GTT properly loads all assets, the screen will transition to the main control panel screen.

The main control panel has a multitude of assets that can be interacted with, including sliders, touch regions and toggle buttons. When a user interacts with said assets, the GTT will update the bar graphs, animations, and labels that are also displayed on screen. An image consisting of two pipelines and a main boiler represents the flow system that is being controlled. Two toggle switches located on the bottom left corner of the display are used to enable and disable the flow through the pipelines. When enabled, an animation will play on the GTT, showing that the pipeline is currently open. Separate controls are also available on screen, and provide the ability to change the direction of the flow. Pressing these flow direction controls will change the animations to accurately represent which direction water is currently flowing. A slider offers the ability to change the pipeline PSI. Also found on screen is a large button providing the ability to stop and disable the entire system. A reset button provides the ability to reset the GTT. Screen brightness settings can be accessed by pressing the settings button on the top left corner of the display.

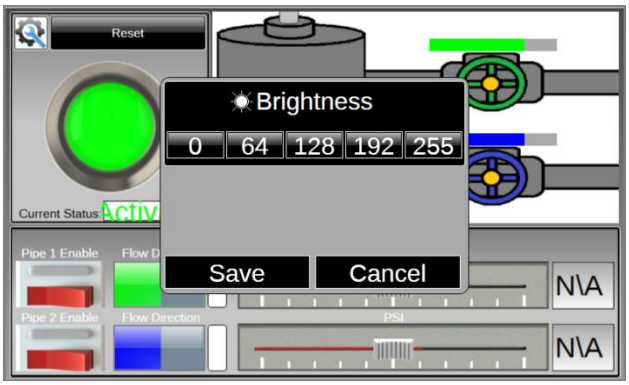

Figure 3: GTT Control Panel Pop up menu

The final screen utilizes buttons, rectangles, and a transparent background to simulate a pop up menu. When the settings button on the main screen is pressed, the GTT will display the pop-up menu. Within the pop up menu, there are multiple buttons that adjust the screen brightness to different levels. Saving the brightness can be done using the save button. Cancelling out of the menu will cause the GTT to revert back to maximum brightness.

Code

The code for this example was written in Arduino C. To start, a number of global variables are defined for the program. Note that the I2C address in code must match that set in the design. This specific example processes data returned from the GTT, and updates the GTT appropriately.

After the initial conditions of the program are set, the code runs in a loop that continuously reads input from the GTT and handles specific touch regions that are defined in the design. When a recognized region is received from the GTT it is processed.

The basic function of the program is to process slider inputs, and update the display screen appropriately. Whenever the slider is adjusted, the Arduino will process the slider's value, and then update the PSI label and bar graphs associated with the slider.

This simple code demonstrates the elegance that the GTT display and designer software can bring to even the most basic controllers.

Figure 4: Control Panel Example Main Loop

Conclusion

In this example, a control panel interface was generated and deployed to a GTT70A display using the GTT Designer software tool. Using this information available in the Designer report, a simple piece of code was written for an Arduino platform to control the interface.

This Control Panel example demonstrates the power of both the Matrix Orbital GTT display series and the GTT Designer software.

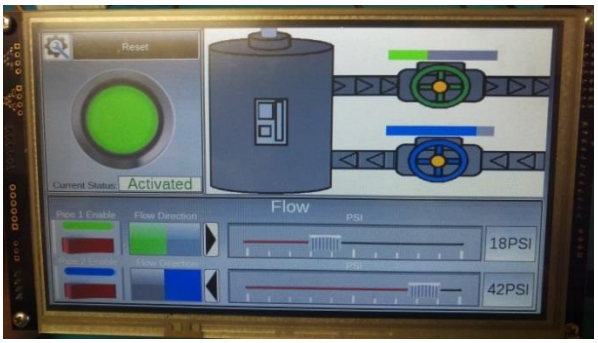

Figure 5: GTT70A running the Control Panel Example

For more demos and tutorials on the GTT and the GTT Designer, check out our forums at lcdforums.com

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