GTT Designer Keypad Example

A GTT Designer example for keypad input

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 GTT50A-TPR-BLM-B0-H1-CS-V5 was connected to a 5V power source via its power/communication header, 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 GTT50A with a BreadBoard Cable (BBC), and to a PC via a USB cable.

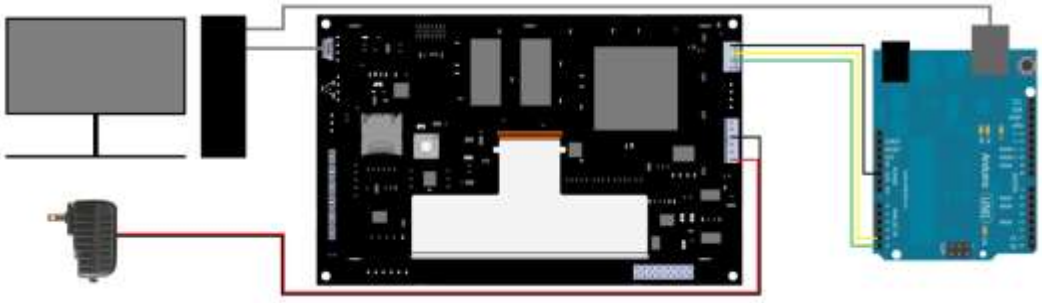

Figure 1: Keypad Example PC, Arduino, and Power Connections

Design

The design for this example consists of two separate groups of elements: a keypad and a label. The keypad group consists of rectangle buttons of various colours, each assigned a specific ID. The label group contains not only a dynamic label with a set ID, but also decorative rectangles. For this example, it is important to set IDs for elements because they will be referenced directly in code. A complete list of all elements is available in the Report.txt file found within the output folder of the project.

Figure 2: GTT Designer Keypad Example Design

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 example specifies a code length of four digits, and sets the default code to 1234. Printable characters are tracked so that the label is center justified correctly, no matter how many digits have been entered.

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 check a four digit input code against a key code and notify the user if the values match. Feedback is provided by changing label colour and activating the piezo buzzer.

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

Figure 3: Keypad Example Main Loop

Conclusion

In this example, a basic keypad interface was generated and deployed to a GTT50A 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 keypad example demonstrates the power of both the Matrix Orbital GTT display series and the GTT Designer software.

Figure 4: GTT50A running the Keypad Example

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