

Challenge 2: Desktop App Showing Common UI Elements.

Problem Description

Using the language of your choice, create a Windows GUI application which has the following functions:

- One Form with four different tasks:
- Task #1) Upon startup connect to the supplied DLL, use it to list the names of the connected devices in a text box.
- Task #2) Using 3 Track bars (Red, Green_Blue) set BG color of a Label to an RGB value.
- Task #3) Using a Timer, show the amount of time the app has been running in the Form caption bar.
- Task #4) When the user clicks a button, get the firmware Version and the DLL Version from the first device that was found by Task1. Display this information on the form in any manner you choose.

Resources: (We have signed all downloadable resources.)

DLL download:

https://support.nipponpulse.com/CommanderDevelopmentTools/Files/Software/API/Commander_DLL_V1.3.170.0%20Installer.exe

Communication guide:

<https://support.nipponpulse.com/CommanderCommunications/CommanderCommunications.html>

Command Reference: https://support.nipponpulse.com/NPA_Command_Reference/VER-FirmwareVersion.html

Goals

- **Code Clarity and Structure:** Ensure your code is clean, well-organized, and easy to understand. Use clear variable names and comments to document the function of each task and the main parts of your code's logic.
- **Technical Documentation:** Provide a brief README or code comments that explain your design decisions. The documentation should be clear and user-friendly, as if explaining to another developer or a tester how the firmware operates.
- **Demonstrate your ability to:**
 - review documentation.
 - connect to, communicate with and disconnect from, a DLL.
 - create a simple GUI app for Windows.

Deliverables

To be Hosted to a Git of your choice:

- **Source Code:** All source code for your GUI demo app.
 - a. Instructions to compile the source code to create an executable version of your app.
- **Documentation of Approach:** A README or in-code documentation outlining the design. Explain how your GUI functions, and any assumptions. This documentation should be written in a clear, user-friendly manner, as if you are guiding a new developer through your code.

Time Estimate

This challenge should take approximately one (1) hour, assuming familiarity with DLL communication and GUI functions. Focus on implementing a working solution rather than perfection because of the time constraint. Failing to complete the task within the hour incurs no penalty. Please provide what you could complete.

Bonus

- During the testing, we will connect actual hardware to be found by the DLL. Extra credit if your code can connect and list connected devices as outlined in Task #1.
- Implement a method to send other commands of the user's choice to the connected device.
- Add a visual indicator in the GUI to show the connection status (e.g., a green LED when connected, a red LED when disconnected).
- Ability to connect to any device found in Task#1.