ITT305: Data Communication
Assignment: Programming Assignment 1

November 20, 2022

Technologies Used:
Language: C++
Graphics Libraries: GLFW and GLEW
Graphics API: OpenGL
IDE used: MS Visual Studio

How to run the code?
All the library are included as binaries for Windows OS (7, 8, 10, 11). Either build the files in MS Visual Studio or run this command:
g++ -Wall *.cpp *.h -o encoder -lglfw -lGLU -lGL

Assumptions:
Works for Windows OS only.
Graphical output can be properly seen for binary data of length 32 bits at max.
AMI starting voltage for 1 is positive.
All encoding, decoding, scrambling and unscrambling techniques have been designed based on the class lectures.
The graph at top is input signal, at bottom is decoded and in between is encoded.
In case of scrambling, scrambled signal is output.
White vertical lines denote clock interval while horizontals represent neutral voltage.

Competitive Coding:
Longest Palindromic Subsequence: Used Manacher's Algorithm - O(n) time complexity where n is length of binary data.
Scrambler: Both in O(n) time complexity where n is length of binary data.
Unscrambler: Both in O(n) time complexity where n is length of binary data.
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