ITT305: Data Communication
Assignment: Programming Assignment 1

November 15, 2023

Technologies Used

Language: Rust
Graphics Libraries: Nannou and Nannou-egui
Code editor used: VS Code

Setup?

For Fedora users with NVIDIA graphic cards:

```
sudo dnf install alsa-lib-devel
```

```
sudo dnf install
https://download1.rpmfusion.org/free/fedora/rpmfusion-free-release-$(rpm -E %fedora).noa
```

```
sudo dnf install xorg-x11-drv-nvidia akmod-nvidia vulkan-tools
```

Installing Rust:

```
curl https://sh.rustup.rs -sSf | sh
rustup component add rust-src rustfmt-preview rust-analysis
```

Running the project?

Clone the repository:

```
git clone https://github.com/cyberphantom52/digital_signal_generator.git
```

Navigate into the project directory:

```
cd digital_signal_generator
```

Build and run the project:

```
cargo run
```

Assumptions

- Works for all OS but this guide is specific to Fedora.
- All encoding, decoding, scrambling, and unscrambling techniques have been designed based on the class lectures.
- The graph at the top is the input signal, at the bottom is decoded, and in between is encoded.

Competitive Coding

Encoder: O(n)
Longest Scrambler: O(n)
Unscrambler: O(n)

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