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04/17/2022

Senior Design 2

Summary of The Implementation of The Power Loss Demonstrator Program

Technologies Used:

- The Java programming language
- The Swing library which is part of the Java Programming Language

Design Details:

The program has one frame, MainFrame.java, which has many panels. The panels are divided into two categories:

- Components Panels
    - PowerSourcePanel
    - SignalGeneratorPanel
    - AmplifierPanel
    - TransmitterPanel
    - MetamaterialPanel
    - ReceiverPanel
    - LoadPanel
- OtherPanels
    - SelectionPanel
    - HelperPanel
    - ResultsPanel

Each panel in the components panels category has an array list of components, and these components are design in the Classes directory. The panel is also responsible for

creating this array list and assigning data. For example, the AmplifierPanel creates a list of amplifiers as such:

```
amplifiers = new ArrayList<>();

        amplifiers.add(new Amplifier("SZA2044", 40, "Images/SZA2044.png"));
        amplifiers.add(new Amplifier("TQP7M9103", 40, "Images/TQP7M9103.png"));
        amplifiers.add(new Amplifier("SZM2166", 40, "Images/SZM2166.png"));
```

And creates the buttons for them as such:

```
for(Amplifier a : amplifiers)
            buttons.add(new Button(a));

        for(Button b : buttons) {
            b.setFont(new Font("Aria", Font.PLAIN, 10));
            this.add(b);
        }
```

The section panel displays the picture of the component once it has been selected.

The results panel received a list of selected components, then calculates the values.

Other Details:

Frame.java inherits from JFrame and it provides a more customized behavior specific to the program.

Button.java inherits from JButton and it provides a more customized behavior specific to the program.

Label.java inherits from JLabel and it provides a more customized behavior specific to the program.

How to Use the program:

For installation and running the program, read the README.md file.

When the program is running, select a component from the Power Source panel, then click the select button, a picture should now be displayed showing the selected power

source. Do the same for all other components. Note: You must select exactly one component from each category, except Amplifiers and Metamaterial.

Once all selections has been made, click the submit button, if you have done the previous step correctly, you should get a success message. Click ok, and you should now be seeing the results and power losses across each component.