



Computer Science
&ENGINEERING

State-Based Plot Coloring

Progress Demo

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Team #36

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1. Use Cases

1.1 A list of use cases and/or requirements implemented that will be demonstrated

- The system shall read in data from sample machine data.
- The user enters their own values for each state that is either a default state or a state defined by the user. These values are then used when plotting the data.
- The user chooses the colors to represent each default or user defined state which are then used when plotting the data.
- The user selects the Trend Plot to view which results in the plot being displayed on screen.
- The system shall handle edge cases where the machine is in two or more states at the same time in the Trend Plot.
- The system shall allow the user to select a machine to view in the plot when multiple machines are present in the Trend Plot.
- The user selects the Cascade Plot to view which results in the plot being displayed on screen.
- The user adjusts the elevation and azimuth of the cascade plot using two sliders.
- The system shall handle edge cases where the machine is in two or more states at the same time in the Cascade Plot.
- The system shall allow the user to select a machine to view in the plot when multiple machines are present in the Cascade Plot.
- The user selects the Bode Plot to view which results in the plot being displayed on screen.
- The system shall allow the user to switch between the different plots.
- The system should allow the user to display multiple plots at once.

1.2 A list of use cases and/or requirements that are not yet implemented

- The user adjusts the size of the window to make the window larger or smaller to fit their needs.
- The user selects a machine to change the color of the selected machine plots in all plots.
- The system shall allow the user to select a machine to view in the plot when multiple machines are present in the Bode Plot.
- The user chooses the colors to represent each default or user defined state which are then used when plotting the data in Bode Plot.

2. Project Status

We have developed the user interface for our project. For 2D graphics, the WPF coordinate system locates the origin in the upper-left corner of the rendering area. We have changed it to the customer coordinate system whose origin is in the bottom-left corner of the canvas. We have added two classes, which are `ChartStyle2D` and `ChartStyle3D`. They define all chart layout-related information. In addition, we are able to display data in the Cascade Plot, Trend Plot, and Bode Plot. The software we are developing can display the overlap between states using different colors in the Cascade Plot and Trend Plot. Moreover, after the user selects a machine, the colors for the data of the machine that the user selects will change. Also, we have developed the Bode Plot and Trend Plot. We are able to display data in the Bode Plot and Trend Plot, but the

implementation is not totally completed. The following lists the major developments completed:

- The Main User Interface
- Text File Reader
- Cascade Plot
 - Display data in the Cascade Plot
 - Handle the overlap between states in the Cascade Plot
 - Handle the overlap between machines in the Cascade Plot
- Trend Plot
 - Display data in the Trend Plot
 - Handle the overlap between states in the Trend Plot
 - Handle the overlap between machines in the Trend Plot
- Bode Plot
 - Display data in the Bode Plot

There are some functionalities that we have not finished implementing. For example, the Bode Plot does not hide the visibility of other two machines when the user clicks one machine. By the end of April, the software will allow the user to adjust the size of the window to make the window larger or smaller to fit their needs. In addition, the user will be able to select a machine to change the color of the selected machine plots in all plots. Furthermore, we will make sure that all requirements of each plots will be completely implemented so that the system shall provide a various view of machines to the user when multiple machines are present in All Plot.

3. Contributions of Team Members

Haoxuan Lin spent 15 hours contributing to the following:

- Cover Page
- Use Cases
- Project Status
- Main User Interface
- Text File Reader
- Cascade Plot
- Contributions of Team Members
- 1800 Lines of Code

Myeongwan Beom spent 12 hours contributing to the following:

- Table of Contents
- Use Cases
- Project Status
- Bode Plot
- 400 Lines of Code

Zachary Young spent 12 hours contributing to the following:

- Use Cases
- Project Status
- Trend Plot
- 600 Lines of Code