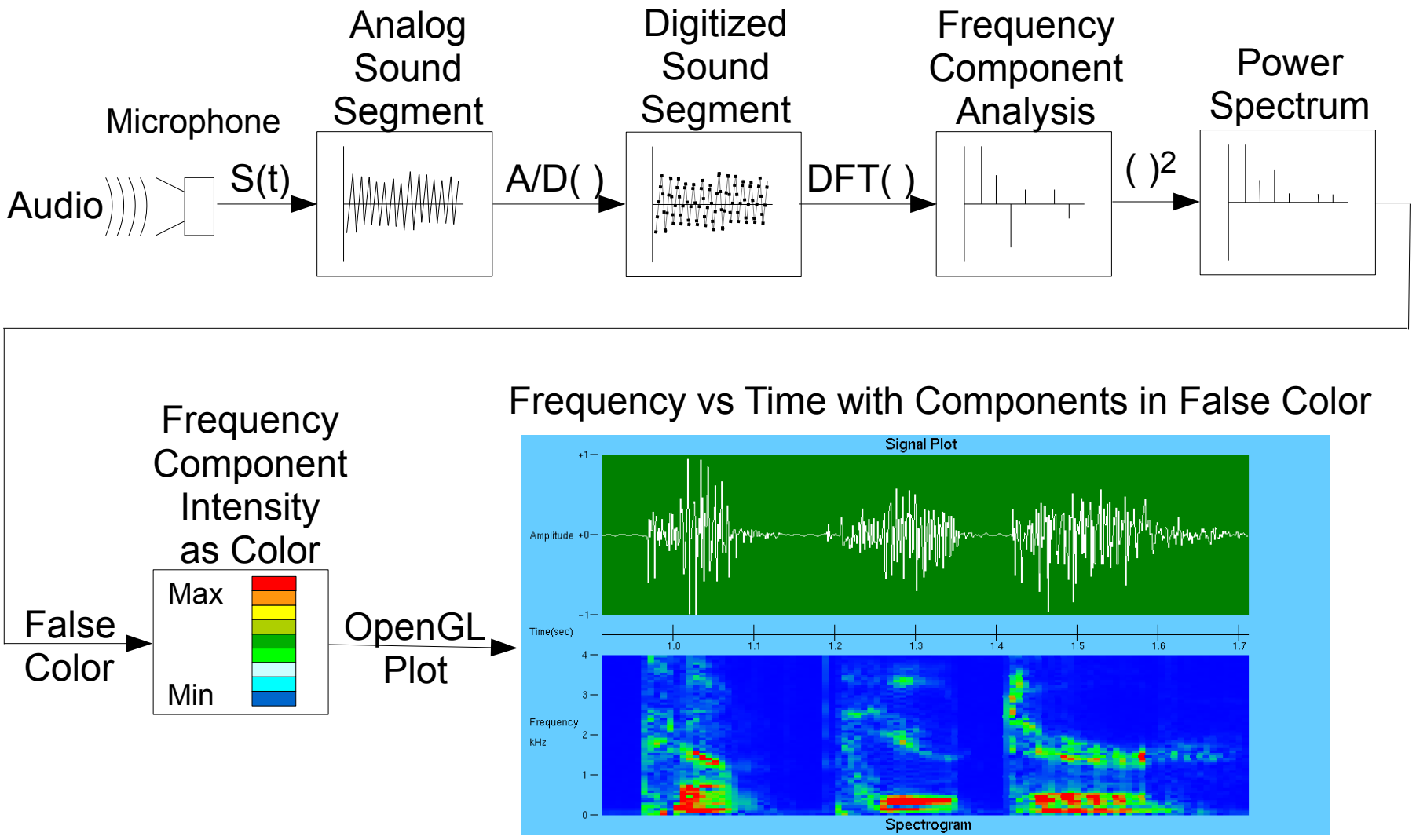
Appendix B

Spectrograms

Spectrograms are a means to visualize speech, music, and other sounds. A very nice demonstration using musical notes may be found at http://classicalconvert.com/2008/04/how-to-visualize-music-using-animated-spectrograms-with-open-source-everything/ . It uses only a single color (red) but varies the brightness according to the intensity.

Producing a spectrogram requires several steps. Figure B.1 outlines these steps. In brief, the sound is digitized and the frequency components of short segments of the digitized sound are found using the DFT. See Appendix A. The intensity of these components are then plotted on a graph of frequency (vertical axis) versus time (horizontal axis). The intensity of each component is shown as a color, with red being the most intense and blue being the least intense. (Red, Orange, Yellow, Yellow-Green, Green, Green-Blue, Light Blue, Blue).

The Spectrogram program on the CD-ROM functions as follows:



Color Spectrogram Display

Figure B.1