

Filter Design GUI

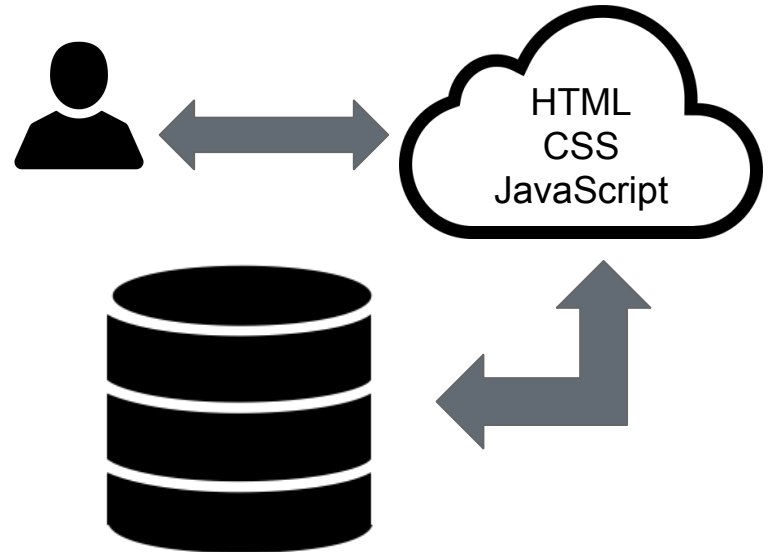
Clayton Lawrence
Benjamin Lloyd

Introductions

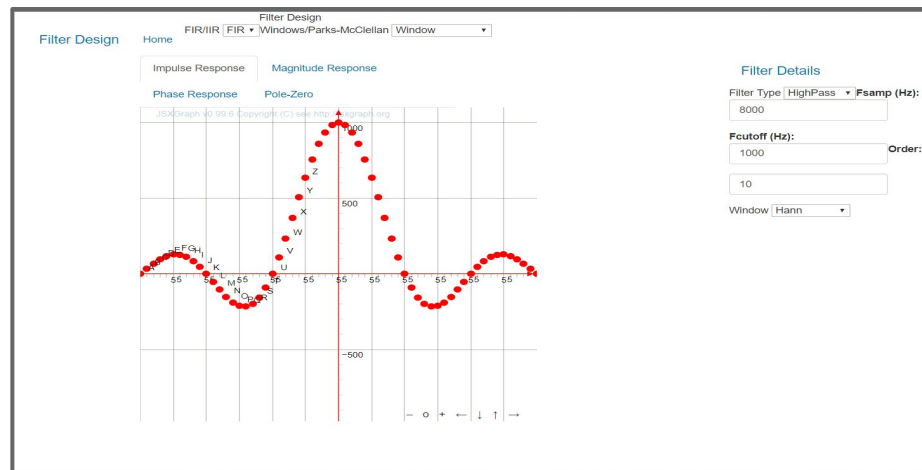
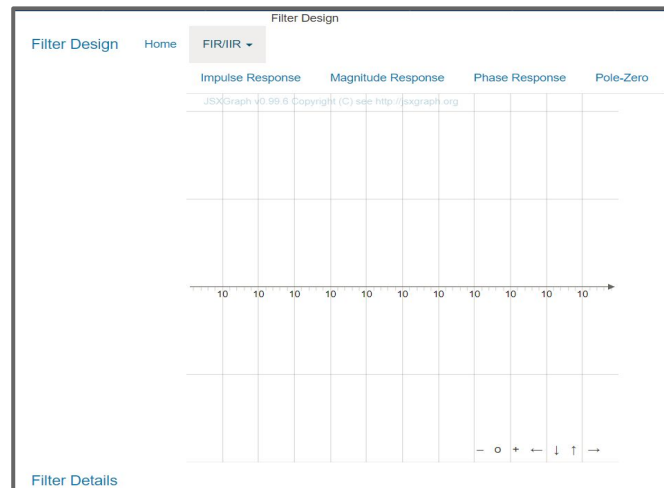
- Team: Filter Design GUI
- Clayton Lawrence
 - 4th year CS
 - 3rd semester with VIP
- Benjamin Lloyd
 - 4th year CS
 - 1st semester with VIP

Project Motivation

- Current implementation tied to Matlab
- Want to provide easier access
- Easy database integration



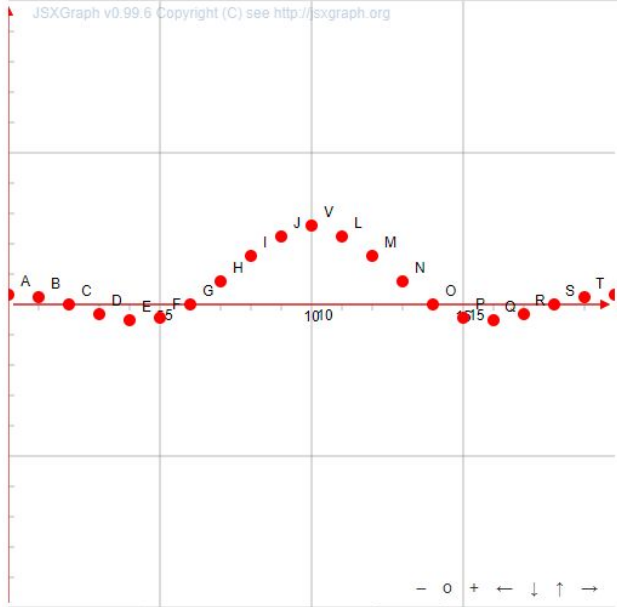
Default States



Graphing Functionality

- Used JSXGraph library to graph functions
- Graphed points for impulse response
- JSXGraph allowed dynamic axes, allowing for quickly changing graphs, with user input
- Used JQuery for event functionality

Impulse Response



- Allowed user input to update graph as the user enters values
- Axes change dynamically as the user inputs data
- Total response is calculated by placing impulse response and window function into vectors, and multiplying vectors
- Magnitude response is derived from the absolute value of the fourier transform of the total response signal

Demo



Database Integration

- Jason and Greg worked on gathering data from the GUI after a click
- Goal: Integrate the GUI to collect data when student uses the GUI to answer lab question(s)

Difficulties with Filter Design GUI

- Translating from Matlab to HMTL/JS
- Abstracting functionality across multiple files
- Adding the database functionality
- Finding good FFT algorithm and implementing it into Javascript
- Dynamic Axes (JSXGraph documentation)
- Graphing accuracy

Plans for Future

- Host on VIP servers to begin collecting data
- Perform machine learning on the data collected
- Make code more modular
- Fix small bugs with graphing
- Finish unfinished graphs

Questions?

