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Spring 2020

Virtual Laboratory for Flexural Beam Testing

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Abstract

- The goal of this project is to be able to extend and build off a curricular tool created to support the Valparaiso University Civil and Environmental Engineering Department.
- It will specifically focus on various data sets, both numerical and graphical and interact with images from various flexural beam tests.
- This project will extend on the work done before on multiple prototypes and continue to build off of designs and requirements of past projects.
- This provides a multi-generational experience for the Computing and Information Sciences (CIS) team and illustrates many challenges.
- This web-based project has multiple features that help interpret data efficiently and allows for changing the displayed data with ease.
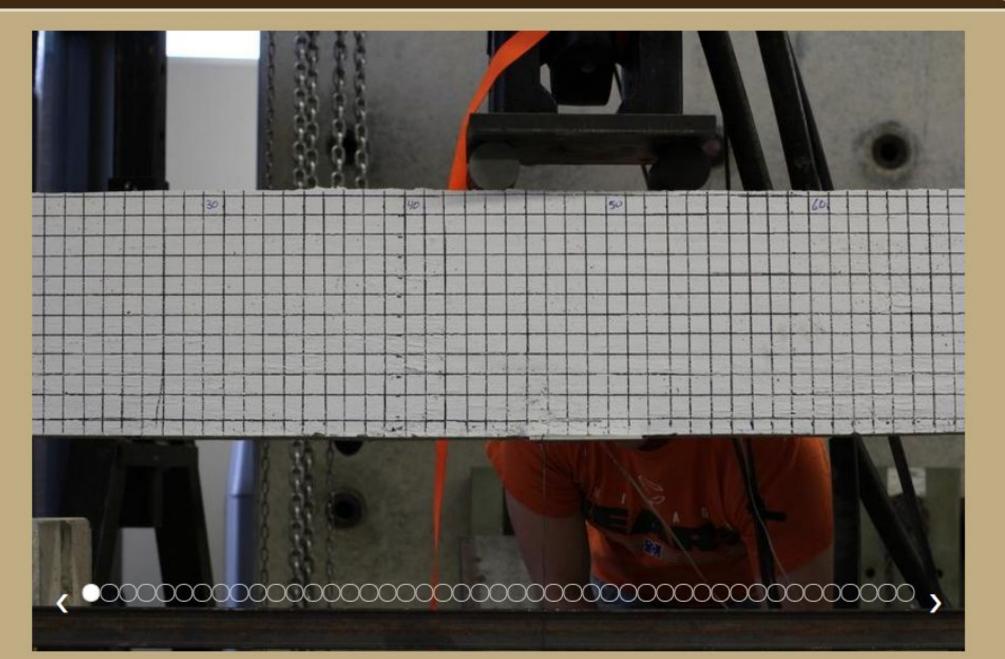
Our Approach

This application was designed using the agile approach and environment. A combination of languages are used including PHP/CSS, which allows this application to be web-based, JavaScript, which allows various functions to control the webpage, SQL, which is a database management tool used to make managing large databases simple, and MATLAB, which is used for image processing.
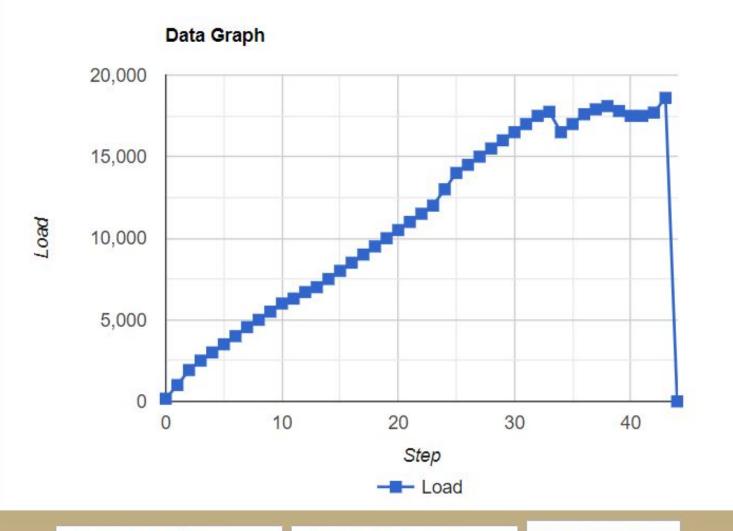
Our application has features to upload new data to the application and allows the user to interact with a slideshow and two google charts; one is a graph, and the other is a table. Both google charts are synced together and the user can interact with both. The user can choose what the x and y axis are, while the table features all data points.

User Interface

Tools

- HTML/CSS
- PHP
- JavaScript
- SQL version 5.7.29-0ubuntu0.18.04.1
- Octave version 4.2
- MATLAB version R2016a
- Google Charts
- jQuery

Acknowledgements

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