NEA Analysis

Background

Exeter College is a general further education college that offers a wide range of courses, there most popular of which is A levels for post 16 students. They are an award-winning college with many on site facilities located in the city centre of Exeter. Students from all across Devon enrol at Exeter College, subsequently Exeter College educates 10000+ students for any academic year.

The physics department at Exeter College is comprised of three teaches and has roughly 200 As level physics students and 150 A level physics students at any given time. Typically, a topic that has been notoriously difficult for students has been electricity.

Pino is one of the A level physics teachers at Exeter College and wants a visually interactive tool to help make teaching the electricity topic more intuitive for her students.

Problem Identifying

Physicsclassroom.com limited functionality

Pino is an A level physics teacher and wants an interactive online tool to showcase electronic circuits to enhance her lessons.

Current System

The current system is a website called physicsclassroom.com. It has limited functionality with little components. The only components that the website offers is a battery, wires, lamp, resistor

Prospective Users

User needs

User Limitations

Data sources

Data destination

Questionnaire

Is there a current system you already use?

If so is there any features you wish the current system has but doesn’t?

What does the current system do well?

Is there any problems you have with the current systems?

What are the solutions to these problems?

What is the most important features you want?

Are there any processes or calculations needing to be done?

What is the most difficult part of the topics for students to grasp usually?

How can the new system help your students grasp those topics?

Any other comments about the new system?

Smart objectives

1. The website should have a sign in page.
   1. The sign up for the website should have a unique username, an email, and a password.
   2. The password should have a capital letter, numbers and a special character with a length of at least 8
2. The user should be able to drag and drop different components onto a circuit grid.
3. Basic components that should be added are: a variable resistor, a filament lightbulb, a cell, a battery, a wire, a voltmeter, and ammeter, a switch
4. Advanced components to be added if there is time: thermistor, capacitor, diode, LED, fuse, LDR, inductor
5. The user once signed in should be able to save their favourite circuits to their account to be pulled up later.
6. The users email should be verified upon sign in.
7. The user should not be required to sign in in order to use the website.
8. The ammeter and voltmeter should be able to show the voltage and current at any point during the circuit
9. The user should be able to see the iv characteristics of different components in a visually intuitive way.