As a part of the RGDX level 2, users should be able to graph their data as the experiment proceeds and make conclusions based on the graphs. Through level 2 and the FLOT library, this is now possible.

In the current view of level 2, the user sees a graph, and two data tables below the graph. The first data table contains the x-y coordinates of points on the graph. As the user enters or changes the text box, the graph is automatically updates to reflect the change. These data points appear as yellow circles on the graph. At first, there are only enough rows to plot five data points; however, as the user get to the bottom of the chart, a row is added when all possible spaces have been filled. This allows the user to input as many data points as they would like. The user also has the option of hitting the check box, which takes the log of the data and re-plots it. When the user is satisfied, they can then move on to the data table to the right, which plots a line of the form y=mx+b. A line is plotted across the graph that corresponds to the inputted slope and y-intercept. When the line is plotted, the R2value, which shows how well the data fits the modelled line, is calculated. The slope and y-intercept, as well as the highest R2 value, is recorded; this allows the user to change the line to get a better fit, while storing the previous “best” line. Finally, if for any reason the user wants to start from the beginning, he or she simply hits the “Reset” button

Though a lot has been done on this project, there is still a lot of potential. The first things that can be changed so that the program works smoothly is the scaling on the x-axis when the user clicks the checkbox and implementing a slider that can be used to replace the data table for the line. When the user clicks the check box right now, the data is re-plotted in the appropriate way, but the ticks marks on the x-axis are crowded. This makes the data hard to read. Using the ticks markers as a part of the FLOT library (<https://github.com/flot/flot/blob/master/API.md#customizing-the-axes>), this problem can be corrected. In the case of the data table for the line, the columns for the slope and the y-intercept can be replaced with slider, which will be more user-friendly. When the user wants to plot a line that fits data better, he or she just has to move the slider. The R2 will continue to change as the slider moves, which will allow the user to see how their line affects their data. At this point, it may be a good idea to introduce a visual indicator, like a thermometer, which would show how close the R2 value is to the “perfect value”, which is one. A final step could include a computer-calculated line that most accurately reflects the data; this would allow the user to determine how close his or her line was to the computer generated values. This would provide valuable insight and could instruct a student on their graphing ability.

This project has a lot of potential and can reach many students across the globe. By improving level 2, and providing a quantitative way of approaching this physics experiment, students can not only learn, but also understand what is happening in the experiment. This experiment was intended to change online education; with its great potential, that goal is not a dream but a very tangible reality.