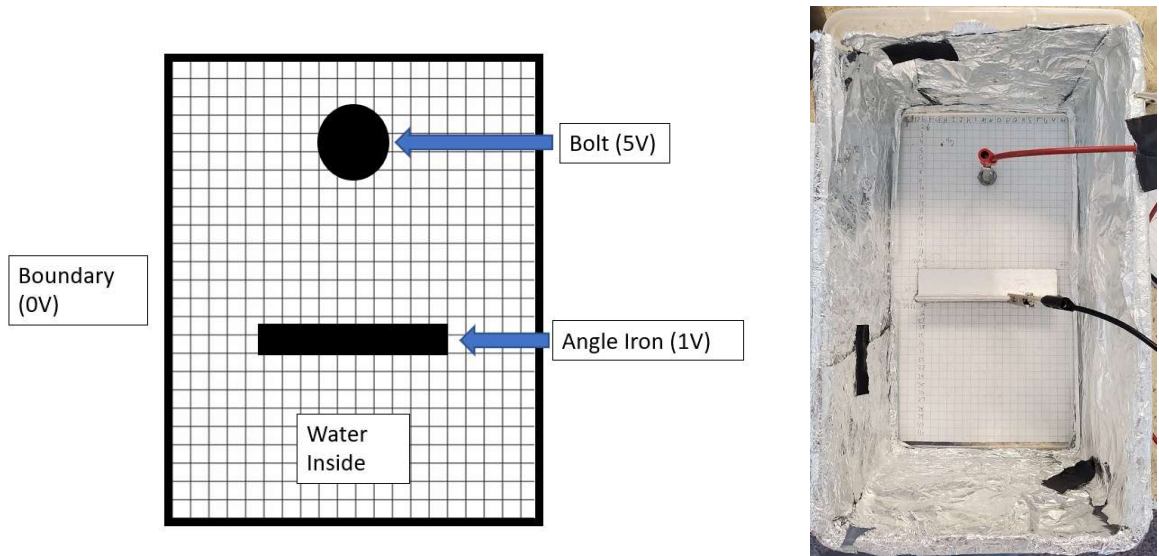


Using the Method of Relaxation to find the Electric Potential Inside a Boundary: A brief overview

This project explores the use of the method of relaxation to determine the potential inside a closed boundary with a known charge distribution. The real-life setup has a grid pattern with 23 x 42 1/4" squares.

Basic Setup:



Computational solution:

In Python, this grid is stored as an array of voltage values. The boundary, bolt, and the angle iron are all kept at their respective voltages at positions in the python array that correspond to the real-life grid.

Using the method of relaxation, a solution to the potential inside the boundary is found. This process finds the average of value of each grid square by considering the value of the surrounding squares (left, right, above, below). This process is then repeated 1000 times, to obtain a relatively smooth potential distribution.

The grid in python is 42 x 42 because the method I was using required a square array, but the only values that impact the results are within the real-life 23 x 42 grid.

