Abstract
Turbidity is the cloudiness or haziness of a liquid caused by countless microscopic particles that are normally invisible to the human eye, similar to smoke in the air. The measurement of turbidity is an essential component of water quality assessment. The Safe Drinking Water Act and the National Primary Drinking Water Regulations provide regulations that companies are required to follow to ensure quality drinking water. However, for individuals utilizing private wells, there are no legal requirements requiring such inspection. Despite the state's large number of private well water systems, less than 200,000 private wells in North Carolina had their water tested for contaminants from 2000-2010. While it is important to regularly test water for potential water borne diseases, an average Turbidimeter costs around $1500, which is not affordable for individuals in low income communities utilizing private wells. This research project utilized an image processing software, Image J, to calculate an accurate calibration and produce graphs for turbidity concentrations based upon scanning a water sample. The Nephelometric turbidity concentrations of the produced serial dilution were 0.28, 2.25, 1.54, 5.15, 10.2, 19.7, and 26.7 NTUs. The NTUs are based on its actual concentration, and not dependent on camera quality. An accessible measuring device that calculates the concentration of turbidity is crucial to the goals of the ECUIPP lab and community. The potential for the app to support educational processes and raise awareness of water quality makes it another key component of the ECUIPP lab's goals.