Exploring Wave Properties of Light Through Simplified Double Slit Experiment

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Young’s Double Slit experiment proves the wave-like property that light has through the interference pattern it shows when light passes through the two slits. The goal of this experiment was to measure how different variables like distance between the slits and screen, intensity of light, wavelength of light, and slit width and separation would ultimately affect the resulting interference pattern. By predicting the distribution of light intensity along the interference pattern, and then measuring the resulting intensity at differing locations on the screen, I show the plausibility of light's existence as a wave. However, due to a problem concerning the size and sensitivity of the photodetectors used, I was unable to complete this experiment. Instead, I aimed to explain the laws and rules that govern the double slit interference pattern, show the experiment I would have carried out, and what was missing such that I ultimately could complete it. In the end, due largely to human error, I found that the equations were not entirely valid as there was a large margin of error between the predicted distances and the real distances between bright spots.