# The Eye of the Beholder: Creating a New Prototype of a Medical Infusion Pump

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This engineering project was designed to improve the accuracy and reliability of counting I.V. drops while administering medicine. These devices would be used when a medical infusion pump is not accessible. Some examples of these situations include an MRI setting, ambulance, airlift, emergencies, combat, and in third world countries. Three different prototypes were designed to solve the problem the medical field faces. Prototype I was designed with different colored backgrounds to the I.V. micro drip to test what colors made it easiest to see and count the drops as they pass through. Prototype II was designed with a flashlight and concave lens to cast an enlarged shadow on a black canvass. When a drop went through the I.V. it allowed for the drops to be counted easier. Prototype III tested the accuracy of counting I.V. drops using an infrared laser counter that I designed. Along with a custom designed holder to help with stability. The three prototypes all showed a more accurate way of counting I.V. drops and all are cost effective devices. Prototype I was the most ideal for an MRI setting due to it containing no metal. The subjects preferred black, but one subject preferred red better in dim lighting. Prototype II worked to cast an enlarged shadow, but the subjects were still not a 100% confident in counting accurately. The most desirable and accurate to all the subjects was prototype III with the infrared laser counter.

**Awards Won:**