**Assignment 4.2: Report**

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**YouTube Link:**

<https://www.youtube.com/watch?v=fNF27NQuA0c>

**Description:**

This lab was an extension of the final lab in Assignment 4.1. In this lab, we used a Sharp IR sensor attached to a servo motor to scan in a 180-degree arc, reporting back the distances it measured in centimeters. The data was gathered using USART0 on the ATmega328 and was captured using RealTerm. The data was stored in the ir\_capture.txt file, and a graph of the data can be seen in the ir\_capture.xlsx file. To test the sensor, an object was placed in front of it. The object was the box for the AVR Dragon. The box was placed roughly about 7 centimeters from the sensor. A question was posed for this assignment regarding whether or not the sensor “sees” the object even when it isn’t directly pointing at it. In this case, I would say yes, as long as the object is sufficiently large. This is because the sensor has somewhat of a peripheral vision, meaning some of its vision range is not directly in front of it. If an object is large enough to fit into that range, the sensor does not need to be pointing directly at the object to sense it. Note: when I am describing the sensor, I mean the whole system, including the servo motor. Without the motor, the Sharp IR sensor would not have a big enough peripheral vision to be able to sense objects that are not in front of it.