



WPI

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RBE 1001: Introduction to Robotics C-Term 2019-20 Lab 1: Pre-lab

1 Pre-lab worksheet

This is an individual assignment. Submit your answers online.

1. The ultrasonic sensor uses sound waves to determine the distance of an object. What is the speed of sound in a standard atmosphere? How long will it take to receive an echo from an object that is 10 m from such a sensor?
2. Do some research (or use your understanding of geometry) to develop formulas for,
 - The distance your BaseBot will travel for a given wheel diameter and wheel rotation (in degrees), and
 - The angle your BaseBot will travel for a given wheel diameter, wheel track, and wheel rotation (in degrees).

For the second formula, assume for now that the wheels turn the same amount, but in opposite directions.