

# Introduction To The New CDbot Lab, Module 1

## Overview:

In this lab students will be introduced to the NewCDbot Robot and will assemble their NewCDbotKits in small groups. Students will become familiar with the various components that constitute a NewCDbot and learn the function of each. At the end of this lab students should be capable of assembling a NewCDbot. The total time to complete this lab will be approximately 50 minutes.

## Lab Setup and Preparation:

Students should be broken up into groups of 4 or 5. The group assignments should be decided before the actual day of the lab. This will help to reduce the amount of time required for the lab. Each of the NewCDbotkits should be inspected to ensure that all the pieces are intact and that the batteries are fully charged if rechargables are used. If alkaline batteries are used then there should be several extra batteries available in the case that one of the robot's batteries goes dead. The (4)-AA batteries can be placed with each of the NewCDbotkits; however, the 9-volt batteries should be removed from each of the kits. The 9-volt batteries will not be handed out until the correct wiring of a group's NewCDbot has been verified. One copy of "[Intro to the NewCDbot IRPD.pdf](#)" and depending upon the sensors used in your NewCDbot kits, either a copy of the "[New\\_CDbot\\_Kit\\_Assembly\\_IRPD.pdf](#)" or "[New\\_CDbot\\_Kit\\_Assembly\\_Bumpers.pdf](#)" should be made for each of the lab groups. A simple test program should be loaded into each of the NewCDbotRobot's so that the students will be able to use and explore their robot once it has been assembled.

## The Day of the Lab:

Students can be partitioned into their groups of four or five. At this time several questions can be presented to the students for them to answer in a group-wise manner. Several sample questions are listed below.

- (1) *What is a robot?*
- (2) *How big or small is a robot?*
- (3) *How much does a robot cost?*
- (4) *If you were to build a robot, what would it do?*

At this time the student groups should be given five or ten minutes to answer these questions. At the end of the lab another five to ten minutes should be provided so that the students can discuss their answers to the above questions.

A copy of the "[Intro\\_to\\_the\\_NewCDbot\\_IRPD.pdf](#)" and appropriate assembly instructions can now be handed out to each of the student groups. The lab should begin

with a brief introduction to the NewCDBot using the Introduction to the NewCDBot paper. This paper will help to explain about the various components used in the kit. The teacher may choose to go into more detail on each of the components used in the NewCDBot kit or may follow the paper. Once the Introduction to the robot has been covered the student groups can be given the kits and begin assembly using the appropriate NewCDBot Kit Assembly paper. During this time it would be beneficial to have any available assistants roam around the classroom so that they may provide answers or help students with the assembly process. Students should ***not*** be given the 9-volt battery until their robot's wiring has been verified. This will help to eliminate any unwanted damage to the electronic components.

Once the students have completed assembling their NewCDBots they can experiment with their robot by letting it roam around in a designated area. The students should be encouraged to build a simple obstacle course from wooden blocks or any other readily available objects and allow their NewCDBot to try and navigate the course.

Five or ten minutes before the end of the class should be reserved for discussion of the earlier answered questions.

Please email any questions to [abe@abotics.com](mailto:abe@abotics.com)