The objective of this project is to create a demonstration/video (5 minutes max) of programming concepts using LEGO Mindstorm kits. Each team will formulate a task for their robot to accomplish and then demonstrate the use of a program that allows the robot to accomplish that task. Grades will be determined based on the complexity of the task and the successful completion of that task by the team’s robot. Each team will select a level at which they want to be graded and must accomplish all of the tasks at that level plus any tasks at the previous levels in order to make their target grade.

In order for your team to perform at the D grade range (60 – 70) :

1. You must define a non-trivial task for your robot to accomplish.
2. Demonstrate the use of a program that allows the robot to accomplish the task.

In addition to the above, for your team to perform at the C grade range (70-80) :

1. The program needs to make use of branching logic based on input from one or more of its sensors, that is, you need to demonstrate that your robot can identify and make good choices at the appropriate times.
2. Your robot needs to make use of 2 or more of its available sensors.

In addition to the above, for your team to perform at the B grade range (80-90) :

1. Your robot needs to make use of some state information or memory through the use of variables.
2. You need to provide some motivation during the presentation for why your robot needs to perform the task you have given it.
3. Your robot should be semi independent and not require an “expert” controller or a large amount of luck in order for the robot to succeed at his task.

In addition to the above, for your team to perform at the A grade range (90-95) :

1. Demonstrate novel and creative ideas for task and software design that go above and beyond the simple and straight forward application of software blocks.
2. Impress me

In addition to the above, for your team to perform at the A+ grade range (96-100) :

1. Wow the class with your creative and technical prowess.

Please keep track of the time you spend on this project. Your due date requirements will be the following: A single basic description of what your team set out to do (including time spent). A demonstration and presentation of the project (5 mins max) where you will announce at what grade level your team is attempting to demonstrate. A peer evaluation page, kept confidential from your teammates, in which you evaluate the overall participation of the team including your own participation level. Your project description should include notes that would demonstrate your compliance with each of the above grade requirements. One demo and one description per team. One evaluation from each team member.