Senior Projects 2016

1. **Trinity College Fire fighting robot 2016.**

   This project requires the student to design and build an autonomous vehicle capable of competing in the 2015 fire fighting robot contest held annually at Trinity College in Hartford Connecticut. The contest rules can be found at: [http://www.trincoll.edu/events/robot/Rules/default.asp](http://www.trincoll.edu/events/robot/Rules/default.asp) Each year slight variations are added to the rules to vary the competition and to add complexity.

2. **IEEE Southeast Con Hardware Competition 2016.**

   This project requires the student to design and build an autonomous vehicle capable of competing in the 2015 South East Hardware Competition. This is an annual competition that is hosted by a different host school each year. The competition itself also change each year usually based on a theme or geographical area. The 2016 competition will be held in Florida. The preliminary rules for the 2016 competition will be available at the completion of the South East Con 2015 convention.

3. **2016 ION Robo Waiter Competition**

   This project requires the student to design and build an autonomous vehicle capable of competing in the 2016 Robot Waiter robot contest held annually at Trinity College in Hartford Connecticut. The contest rules can be found at: [http://www.trincoll.edu/events/robot/Rules/default.asp](http://www.trincoll.edu/events/robot/Rules/default.asp) Each year slight variations are added to the rules to vary the competition and to add complexity. Students competing in this competition must compete at the advanced level.

4. **Water Harp**

   The purpose of this project is to create a laser harp that will use water drops/streams to play the notes. The project should include a minimum of one harmonic, and should demonstrate the ability to play a simple tune such as twinkle twinkle little star. The device should be able to demonstrate the ability to play different length notes dependent on the length of the water stream.
6. **Soap Box Derby Track and Timing System**

The purpose of the project is to retro fitted to an existing “dumb” Soap Box Derby track. Your system would include:

Windows GUI that will include:

- Start Race
- Race Times
- Leader Board
- Next Up Board

Your Project will automatically start the race via a start gate and will collect timer data for each car as they pass the finish line. It will use this data to determine a winner and determine a scaled Ground speed of the winning car.

Your Project will use the current soap box derby tables to determine the next up board which will report what cars are in the next race and what lane each will be racing in. Your program must allow an arbitrary number of cars to enter and use the correct algorithm to determine lane assignments.

The Leader board will show the current race leaders and the current tally for each.