Project Based Learning:

Insert Catchy Project Title

# Project Overview:

* As a group, imagine any embedded system you would like to analyze or synthesize. Design all the elements of the system.

# Standards:

* Team must show and explain all aspects covered in the project such as concepts seen in class and from other sources, strategies for implementing the project such truth tables, KMAPs, choice of logic gates, programming instructions sets, storage and input devices, if needed. etc…You may also use any online software design tools.
* Each group has about 10 to 15 minutes to provide the name of the project, its purpose and tools used in implementing the project
* Team must explain lessons learnt and what difficulties, if any, were encountered during the project

# Objectives:

* Create a Logic Circuit that includes K-maps and truth tables.
* Circuit must be functional.
* Must include topics learned in class or outside sources.

# Requirements/Task(s):

# Create a 16:1 MUX by creating an array of 4, 4:1 Multiplexers that can toggle between the different sensor of a car. The array is connected to a main multiplexer that can toggle between the different parts containing the corresponding sensors. Inputs must be 2n , we choose 4 inputs per vehicle location. The selectors will be connected to microprocessor. The final output will show the information of the corresponding sensor.

# Record your notes/research here:

This is where students can record their ideas and research as they gather the information needed to complete their project.

# Outline the steps/plan for your project:

Create Logic Circuit, Create truth Table, Create K-Maps, Create Boolean expression.

## Teacher initials \_\_\_\_\_\_\_\_\_\_\_\_

### You are ready to create your project! Please revisit the project tasks/requirements as you work.

# Summarize what you learned:

We had troubles with trying to connect the multiplexers to a BCD display. Since the 4 bits with the information about each sensor would be traveling through the line it would have to converted in a way that it always matches the number, we want it to display on the BCD. For example, if sensor 1 sends 1010 we would have to create a circuit that outputs 0001 for the BCD to display 1, signifying sensor 1 and you would know the information from the output came from 1. However, since the sensor will constantly send different bits, I will be impossible to create. Our solution was to put a sensor on each of the vehicle locations which can send out a constant 4 bits of information that can be deciphered into the BCD to return the which number sensor you are getting info from.

# Add the link to your project here:

Link to access project