**CSCI 460: Capstone Experience Project Definition**

**2019 Pankratz/McVey**

# SNC Lab Bot

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Most cars today come equipped with multiple driver assist modules such as: a car in your passing lane, auto-traction control, automatic parallel parking, back up cam control, and safe following detection. Dozens of companies including GM, Ford, and Google, are currently testing self-driving prototypes in real environments. Processing must be in real time and sensors must be able to issue interrupts for immediate processing.

Actually, current GPS technology allows the car to continuously “see” everywhere. Certainly, this gives the car much more information than a human driver. For example, suppose the car knows about obstacles with 360 degrees and can “see” what’s on the other side of the hill or around the approaching curve. Clearly, it’s time for our CS lab to have its very own auto-mobile pet bot.

# Project Description: Design activities for a mobile robot mascot that will hang

out and “socialize” with students in the Computer Lab.

**General Requirements:**

1. Consider using a Parallax Activitybot or similar to take advantage of parallel processing.
2. Users might instruct the robot much like an rc vehicle and/or use voice commands to operate the robot.
3. Direct the mascot to move toward a target while avoiding obstacles.
4. The lab robot should be able to perform some preprogrammed activities such as:
   1. Navigate a maze (e.g. find the lab’s door)
   2. Follow people
   3. Avoid people
   4. Follow color
   5. Dance
5. The bot should understand its environment and know the location of the contents.
6. Multiple users could give the robot instructions handling racing issues if necessary.
7. Multiple bots should get along and cooperate with each other.
8. The bot needs a name and a personality/attitude.