Introduction

## Summary:

This course is intended for beginning ECEN students taking ECEN 191 at BYU. We assume that students taking this course have a high school level education and are not required to know anything about electrical engineering or hobby engineering. If you are a beginner this is the course for you.

## Learning Outcomes:

The final product from this course is a simple autonomous car named the AutonoMouse. Students will learn the following skills while developing their car:

* Learn what Arduino is
* Learn how to solder pins onto a PCB
* Learn how to code Arduino Nano
* Learn prototyping with breadboards
* Learn how LED’s work
* Learn about servos/pwms
* Learn about voltage regulators
* Learn how how to spin a servo
* Learn how to work a sensor
* Learn about HC-SR04
* Learn about PCBs
* Learn to solder a PCB
* System integration
* Troubleshooting

## Materials You Need To Buy:

The following materials you will need to buy yourself:

* 2 Bottle Caps for wheels (Gatorade caps work nicely for this)
* Computer (this is for programing, a laptop works best because you can bring it into the lab but a desktop at home would also work)

## Tools Required:

You will need the following tools. These can be found in CB413.

* Breadboard??
* Jumper Wires??
* Hot glue gun+hot glue
* Soldering station
* USB-A or USB-C (depending on the computer) to USB Mini-B
* Double sided foam tape