Engineering Principles                     Name_____

Electrical Engineering

## Color Wheel 4.5.1 Hardware          Date_____ Team _____

## Problem statement

Develop a persistence-of-vision color wheel utilizing 8 RGB diodes and an Arduino UNO R3 board.

## Hardware:

1.  Mount the Arduino to the project board using four small wood screws.  DO NOT over-tighten them. They should be slightly loose so that the Arduino board is not bent.  You may have to negotiate with your programmer to get access to the Arduino board.
2.  Mount the breadboard using the double-stick tape already mounted on its back.
3.  Mount the battery with its wires using wire-ties.  Use two wire ties going across the battery to hold it in place.  Once tightened you should still be able to slide the battery with effort to replace it when it dies.

Previous Year's Board Design
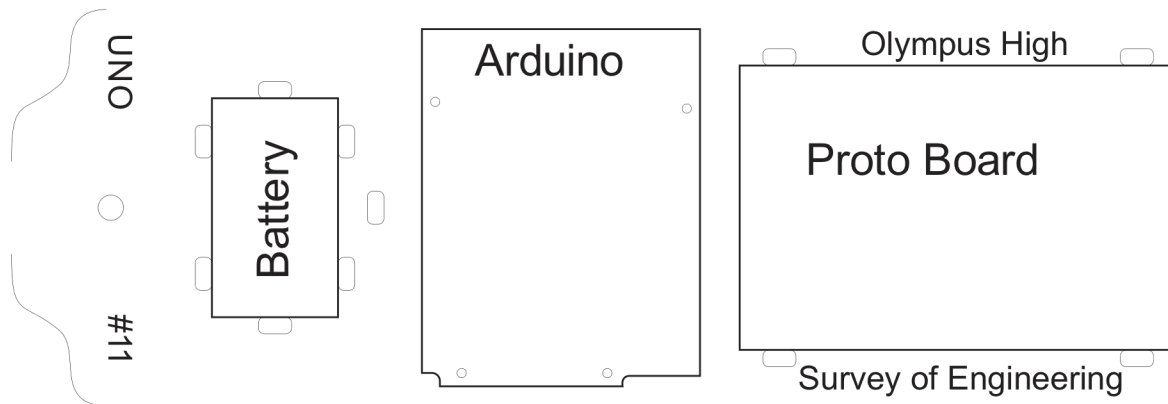


Previous classes may have already done some or all of Steps 4 – 8.  Look at your equipment to determine which of these steps you need to do.

4.  Cut an oak handle 6" long from the dowel rods in the shop
5.  Drill a side-hole near one end using a bit that is the same diameter as the small 1/8" magnets.  The hole should be just over 1/8" in so that the magnet will go in it completely.
6.  Drill a hole centered in the end of the handle 1" deep for the screw which will mount it to the protoboard.
7.  Press the magnet into the first hole.  If the fit is loose, put a drop of glue in the hole to secure it.
8.  Screw the handle on to the board using a #10 screw with a washer on each side of the board.

For the following steps refer to the schematics supplied by your team

9.  Place the resistors and LED's in the breadboard so that you can access all the pins.  Remember that the holes are connected 5 across in the middle areas, and in one straight line running the length of the board on the edges.
10. Use solid wire stripped about 3/8" to connect each LED pin to the appropriate pin on the Arduino board.  Note that several of the pins will need to be connected to each other before being connected to the Arduino.