Construct
a Prototype

<u>ASSIGNMENT</u>

Construct a prototype of one of the following systems:

- A system designed for installation in place of the cork on a wine bottle to detect vinegar content (and spoilage or turning) in the wine, to be indicated by an LED that gradually transitions from green to red.
- A sensor to be installed on street lamps along a walkway that detects pedestrian motion (but ignores motion of dogs, wind, trees, and other distracting stimuli) and sound that may be indicative of crime (yelling, screaming, scuffle) and produces a bright flashing alarm in response.
- A chair that prompts the user to get up and move around if the user has been still for more than 30 minutes, using an alarm system that gains the user's attention but is amusing to avoid the user being so irritated that he/she turns it off.
- A 'smart' golf club that records the 3-axis acceleration of the club during a swing and tracks the angle of the club face through the swing to help the golfer pick up on bad habits. The acceleration and club face angle data are then wirelessly transmitted to and graphically displayed on a smartphone app.

Using guidelines for constructing a prototype, build a prototype of any of the systems above that accurately represents the form, fit, and function of the prototype. Note that that the prototype doesn't have to work as designed, but only needs to convey what it would look like and how it would work if it were fully operational.

When you have constructed your prototype, record a presentation explaining and demonstrating the prototype OR generate a single creative web page (submitted as a URL) that demonstrates the prototype, including multiple states or situations that the prototype might find itself in during regular operation.   To the greatest extent possible, use materials that accurately represent how the product would look and feel when used by a customer.