## **IEPS, Ball-sorter Project Specification**

**Assignment:** You are given two types of balls. Both are ½ inch in diameter, but one is made of steel and the other plastic. Your job is to design and build a device which sorts out two types of balls automatically. In a sense it is like a coin sorter which you see in banks or can/bottle sorter in recycling centers but much more economical.



**Constraints:** Each team is provided with one steel ball and one plastic ball for testing purposes. For construction, you may use cardboards, paper clips, staples, rubber bands, tapes and other items that can be readily purchased at a drug store, supermarket or electronic shop. The cost of all items should not exceed \$5.00. Teams will be expected to include an itemized expense list as a part of their project reports if necessary.

**Material:** You can find cardboard boxes in recycle rooms, 4329SC/3329SC. Please go to 4016SC office if you need paper clips, staples, rubber bands, etc.

**Deliverables:** The testing is on 10/16 or 10/18. A written report is to be submitted through ICON by 11:59pm on the same day. In the testing, 5 steel and 5 plastic balls will be fed into the device randomly and the number of correctly sorted balls will be recorded. Exploit the differences, e.g., weight, conductivity, magnetism, color... and be creative and inventive! Return the balls immediately after the demonstration.

**Written Report:** The written report, to be submitted through ICON by the due time, MUST HAVE the following elements and each element is assigned separate credits.

- Summary of the overall approach taken by the team
- Description of any research/background work carried out by the team
- Discussion of alternative designs considered by the team
- Rationale for selecting the chosen design
- Each member's contribution.

Here are some examples

http://www.engineering.uiowa.edu/~eng\_0055/2021/video/BALLexample.wmv