Design of a Better Mouse Trap

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Type: Design Project
Time: Eight weeks
Location: Take home

Summary

Living out in the country there is a never ending battle between man and that little nuisance creature, **the mouse**. For some reason the field mouse finds the human dwelling and foodstuffs more appealing than what the meadows and fields offer, not to mention there generally aren't hungry hawks flying around inside someone's house. However, a screaming wife and children quickly remind you it would have been better for the mouse to have stayed outside. The present methods of eradicating these creatures consist of traps and poisons, each with their drawbacks. To some the traps might seem inhumane and somehow you have to remove the dead mouse (although they are not always dead) from the trap. The bait used to entice the mouse can attract other unwanted pests, such as ants. When poisons are used the mouse may no longer appear, but then the question becomes what corner, crevice or hole has it crawled into since ingesting the poison. The smell may eventually lead you in the right direction. There must be a way to build **"a better mouse trap."** Your task exactly.

ABET Descriptors

Engr. Sci Content: First Year Engineering
Type: Component
Elements: Establish objectives, synthesis, analysis, and evaluation
Features: Establish requirements, open-ended, design methodology, creativity, synthesis, analysis
Constraints: Economics, safety, reliability
Effort: Two to four person teams

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This project which has been used previously as design project in various institutes is intended to be used with first year engineering students. Students will work in groups of 2-4 people. The project is to design a mouse trap which does not kill the mouse. The mouse trap should be small enough to fit in a corner of kitchen, closet, or a warehouse. The mouse trap should conform to any pertinent safety codes such as the “Consumer Product Safety Code."

Students are to provide the following two phase report:

Report 1:

Each team is required to submit the following in a report format:

1. Problem identification (Project Title, Project Statement)

2. Design requirements.

3. Preliminary design concepts.
   Include freehand drawing (6-10 designs-- two designs per person in the team). Design ideas has to be clear, neat, and have a brief explanation of the mechanism of the operation.

4. Decision making:
   prepare a decision table for the selected designs, at least three designs for evaluation. Include all product requirements.

Report 2 (Final Technical Data Package):

1. Assembly drawing of the mouse trap.
2. A list of materials needed to construct the mouse trap.
3. Comments and conclusion. Explain any problem(s) that could affect the performance of the system and suggest any future improvement.

Presentation:

A brief presentation about the design using student made prototype.