

Protecting/Stealing the Trillion-Dollar Bill: Problem Handouts



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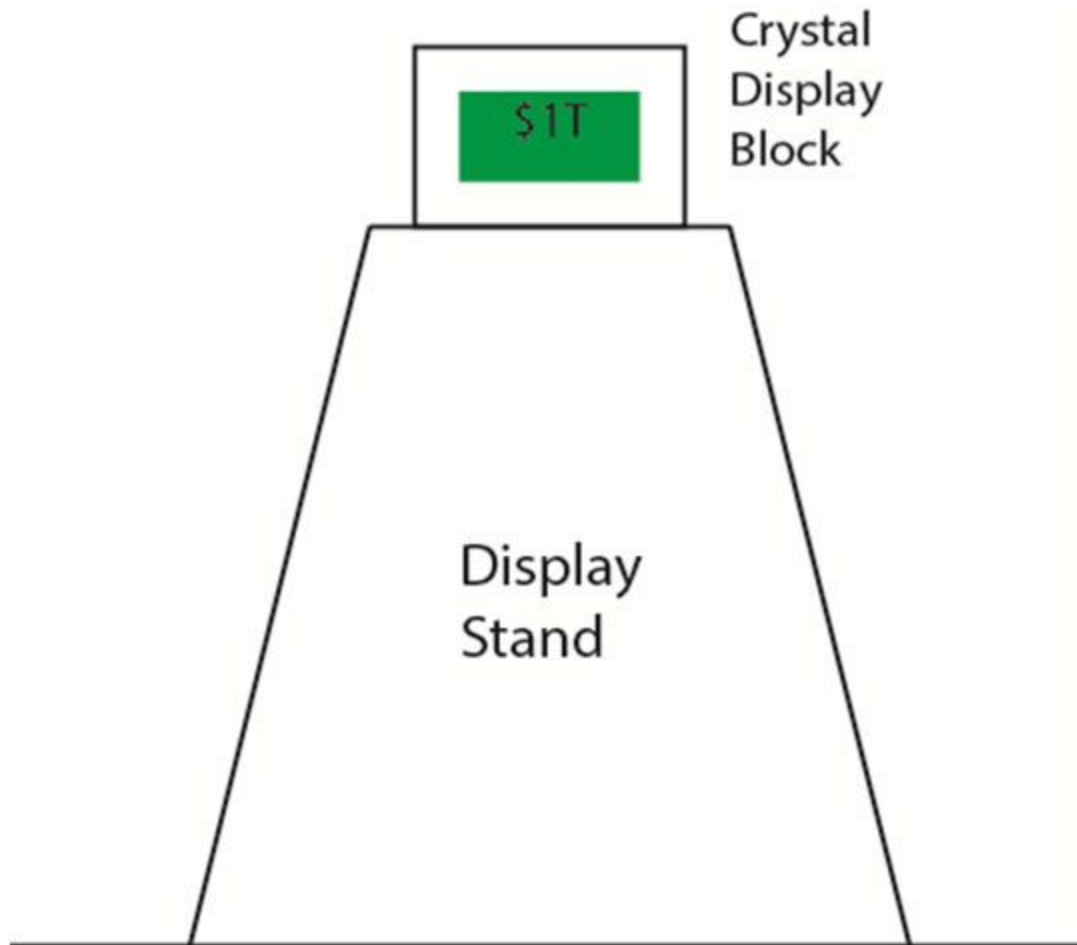
Problem Statement

Mr. Burns has hired your design team to protect his favorite treasure: the trillion-dollar bill. Since being reclaimed from Fidel Castro, the trillion-dollar bill has been safely encased in a crystal block. Mr. Burns will display his treasure at the Springsonian Museum in order to awe the masses.

Your team will design a secure display stand for the trillion-dollar bill. Mr. Burns has provided these specifications:

- You may not modify the crystal block in any way. It is already excellent.
- If a hooligan removes the crystal block, the security system should trip two switches: release the hounds and start the video recording.
- The display stand surface should not move appreciably. That might give the thieves a head start on the hounds.
- No wires, springs, levers, *etc.* may be visible. These would diminish from the spectacle of a crystal-encased trillion-dollar bill.
- You are to design the system, not build it. Include part drawings, circuit diagrams, part numbers, *etc.* A proof of concept demonstration may be provided to help sway Mr. Burns to select your design.

System Diagram



General Instructions

- This is a TEAM project, not an individual exercise.
- Each team is to submit ONE final report.
- For final report, use the lab report format with the following additions:
 - How often did you meet and how did you communicate between meetings?
 - Did you divide tasks among team members or work on all aspects as a group?
 - What did you do to prevent/resolve disagreements or roadblocks?
 - What was the most challenging part of this project and how did you overcome it?
 - Outside resources with citations in text.
- Each team member will complete confidential, individual peer evaluation surveys.
- Seek help as needed. I will be happy to meet with any group of two or more or team members to review what you've done and offer guidance and suggestions.
- Plan ahead with your teammates on how you can work together most effectively. Do not procrastinate!