Virginia Military Institute
Mechanical Engineering Department
Cooperative Engineering Center (CEC)

American Society of Mechanical Engineer's Regional Design Contest
2002

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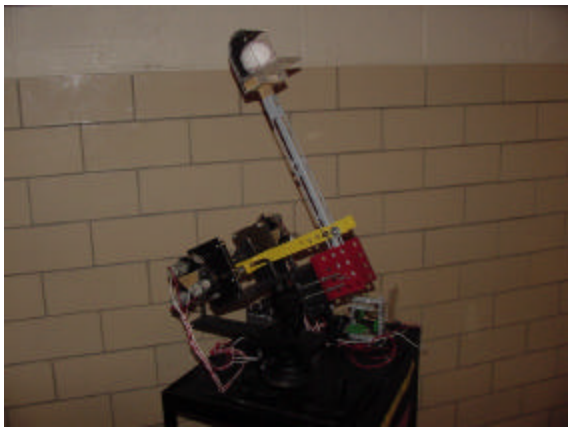
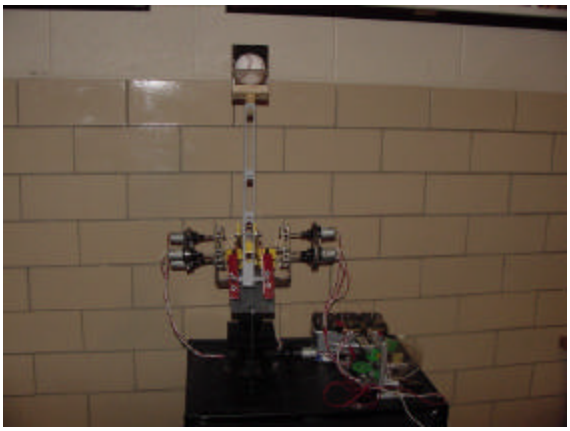
Design, automation and fabrication are significant problems encountered by engineers on a daily basis. Sporting goods manufacturers experience problems in these fields. As part of the national competition, held by the *American Society of Mechanical Engineer's*, this team was tasked with designing and manufacturing a device that would automatically distribute thirty baseballs into three different containment areas.

Currently designed and manufactured, the baseball-throwing machine was given several constraints that had to be followed in order to participate in the competition. These constraints are as follows:

1) The device must operate in a confined space (1 meter cube)
2) 10 or less motors must be used and cannot exceed a price of 10 dollars
3) Unassembled, the device must fit within a 30 x 50 x 30 centimeter box
4) Standard alkaline batteries must be used (9 volt, AA, C, D, or Lantern)
5) The entire system cannot exceed 50 amperes
6) The potential energy after running device must be greater than or equal to the potential energy present before running the device

The device manufactured will provide the baseball with a known amount of energy. By observing the effect the energy has on the baseballs, future manufacturers and

designers will have a better understanding of how to produce similar automated devices or to improve their overall product lines. The finished system includes a timer mechanism, baseball-firing device, loading device and a pivoting table mount.