Automated Systems Contest Rules

DESCRIPTION:
The purpose of the ASD Challenge is to provide a means for teams of TECA members to demonstrate their ability to analyze a typical automated system problem then design and apply a solution to the problem.

TEAM:
Each team will be composed of 3 to 5 students who are members in good standing of a TECA affiliated chapter. The team may not be composed of over 40% graduate students. Each team should identify one team member as the team leader.

PROCEDURES:
1. Members of each team must be present at the designated time and location for the start of the contest.
2. Each team will receive contest details, tools, supplies, and related materials necessary for the manufacturing problem to be solved. Any proposed solution to the problem must be created using only the materials provided.
3. Each team will design and apply a solution to the problem by:
   a. Brainstorming to develop a list of possible solution designs.
   b. Identifying the best solution to the problem.
   c. Configuring an automated device to solve the problem.
   d. Testing/evaluating the automated device to solve the problem.
   e. Demonstrating the solution to the problem.
4. Each team will work in an assigned area. All work must be done in the assigned area with materials provided. Also appropriate safety procedures must be followed during the contest.
5. Forms for sketches and procedures will be provided and will be turned in for evaluation at the end of the contest.
6. The solution for the automation problem must be completed and tested within the time announced for the activity.
7. Judges will evaluate:
   a. the problem solving process used;
   b. accuracy of the completed automatic function;
   c. related sketches, schematics, and forms;
   d. creativity and aesthetics of the design and fabrication; and
   e. safety.
8. Each team is responsible for cleaning up their area at the end of the contest.

MATERIALS:
Basic kit of on-site supplies regardless of the specific automation problem, each team will be provided the following items by the local TECA Contest Coordinator.

(1 each) 1/4 dia. and 1/2 dia. dowel
(10) soda straws
(20) sheets white bond paper
(5 ft.) string
(10) straight pins
(10) pop-sickle sticks
(1) wire clothes hanger
(3) small pieces corrugated board
Automated Systems Contest, continued

The following items will be supplied by each team and include the only tools that may be used regardless of the specific problem.

<table>
<thead>
<tr>
<th>Item</th>
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<tbody>
<tr>
<td>Safety glasses</td>
<td>Scissors</td>
<td>3/4 Electrical tape</td>
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<tr>
<td>Wire cutters (lineman pliers or side cutting pliers)</td>
<td>Pencils</td>
<td>Calculator</td>
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<td>Wire strippers</td>
<td>Hot melt glue gun</td>
<td>Extension cords</td>
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<tr>
<td>Needle nose pliers</td>
<td>Hot melt glue sticks</td>
<td>Screwdrivers</td>
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<tr>
<td>Utility knife</td>
<td>Soldering gun</td>
<td>Pliers</td>
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<tr>
<td>Coping saw</td>
<td>Solder</td>
<td>Adjustable wrench</td>
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<tr>
<td>Ruler and/or Tape rule</td>
<td>3/4 or 1 inch Masking tape</td>
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<tr>
<td></td>
<td>1/2 or 3/4 inch Clear tape</td>
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SPECIAL SUPPLIES
Special supplies required to solve the specific automation problem will be provided to each team.

JUDGING CRITERIA:

BRAINSTORMING WORKSHEET:
School: ____________________________________________
Team Members: ______________________________________
List a number of possible solution to the problem:
A. __________________________________________________
B. __________________________________________________
C. __________________________________________________
D. __________________________________________________
E. __________________________________________________
Circle the letter of the solution you believe will best solve the problem.

SOLUTION DESIGN WORKSHEET:
School: ____________________________________________
Team Members: ______________________________________
In the space below sketch the physical aspects of the automated system that was identified during the brainstorming session as the best solution to the problem.

SOLUTION SCHEMATIC WORKSHEET:
School: ____________________________________________
Team Members: ______________________________________
In the space below draw a schematic of the electronics for the automated system that was identified during the brainstorming session as the best solution to the problem.
EVALUATION AND SUMMARY WORKSHEET:
School: _______________________________________________
Team Members: __________________________________________

- Testing the system
  o Describe the criteria the system must meet as listed in the design brief:
  o Summarize the results of the test:

- Evaluating the system
  o Describe how the system solved the problem in 35 words or less

JUDGES SCORE SHEET - EVALUATION CRITERIA
School: _______________________________________________
Team Members: __________________________________________

SOLUTION DESIGN: (30pts.)
- Brainstorming (10pts.) ______
- Sketches (10pts.) ______
- Schematic (10pts.) ______

SOLUTION FABRICATION: (10pts.)
- Aesthetics (10pts.) ______

TESTING AND EVALUATION: (20pts.)
- Test Procedures (10pts.) ______
- Evaluation (10pts.) ______

SOLUTION OUTPUT: (30pts.)
- Accuracy of Solution (10pts.) ______
- Function (10pts.) ______
- Quality (10pts.) ______

RULES VIOLATIONS:
- Follow Rules/Safety (10pts.) ______

TOTAL: (100pts.) ______