

## 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

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

- Safety glasses
- Wire cutters (lineman pliers or side cutting pliers)
- Wire strippers
- Needle nose pliers
- Utility knife
- Coping saw
- Ruler and/or Tape rule
- Scissors
- Pencils
- Hot melt glue gun
- Hot melt glue sticks
- Soldering gun
- Solder
- 3/4 or 1 inch Masking tape
- 1/2 or 3/4 inch Clear tape
- 3/4 Electrical tape
- Calculator
- Extension cords
- Screwdrivers
- Pliers
- Adjustable wrench

## 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

Describe the criteria the system must meet as listed in the design brief:

Summarize the results of the test:

Evaluating the system

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.)  \_\_\_\_\_

