The Seize of Syracuse
Simplicity Redefined

PROBLEM STATEMENT:
Design a crane, using only straws, which transfers a load from a platform kept at distance R_1=15 cm., from the base of the crane, to another platform lying at a distance R_2=45 cm., all lying in a straight line, clearing a barrier of height H=25 cm. lying exactly midway of the two platforms at R_1 & R_2.

CONSTRAINTS:

1. Base of the crane will be fixed on a platform. Once the platform is fixed its position will not be changed.

2. There will be two platforms 20 cm. distant for transfering the load. Crane should lift the load from the nearby platform and transfer it to the other platform clearing a height barrier of 25 cm. that will be lying exactly midway of the two load platforms. Click here to see it two dimensionsal view.

3. The base platform can be placed anywhere by the participants with only constraint being the minimum distance, that is 15 cm., between the nearby load platform and the base's leading edge and all the platforms shall lie on a straight line.

4. Joints - Maximum overlap between the ends of the straws at the joints shall not exceed 2 cm.

5. No two straws should be glued longitudinally. Minimum distance between any two joints should be 4cm.

6. Base -Structure should have straws of min length 2 cms provided at the base making a 30 cm. x 30 cm. square for fixing the structure rigidly to the platform.

7. Shape - Crane could be of any shape satisfying the above constraints.

8. Structure should not touch any external support during testing.

9. While transferring load i.e. during testing, at any point if your structure fails to satisfy any of the above constraints, **your structure will be assumed to have failed**, even if it satisfies the constraints earlier.

10. During testing of the structure, the external force applied to lift the load should be in the direction opposite the uplift.

MATERIALS TO BE USED:

1. Straws (provided by us after registration).

2. Pulleys (optional, and there weight will be included).

3. Pins, any standard adhesive(e.g. quickfix or fevicol etc.) can be used to join the straws and must not be applied to any part other than joints. Tape or thread must not be used under any circumstances to support the joints.

4. Thread- It should be used only for lifting the load or moving the lever arm.

GENERAL RULES:

1. Students currently enrolled for up to an undergraduate/postgraduate program at their institute are eligible for the competition.

2. Maximum of three participants per team.

3. Each team will be provided with 3 packets of Straws.

4. Teams violating any of the above constraints will be disqualified.

5. In case of any dispute, the decision of the techfest team will be final.

WINNING CRITERIA:
Winning criteria would be the ratio of the load lifted to the weight of the structure. The crane registering highest ratio of load lifted to the weight of the structure would be the winner.
Cash Prize of Rs. **20,000** to be won.

REGISTRATION:

1. Each team has to register online. A registration number will be allocated to the team on registration which shall be used for future reference.

2. Registration for outstation colleges has been closed from 15th January, 2004.

3. Teams from IIT Bombay can register and collect their straws by paying the amount of Rs. 50 from the following people:

Prakash Gupta Hostel 13, B-707	Kamal Kant Jain Hostel 4, 237	Anasua Chaterjee Hostel 10, 316