

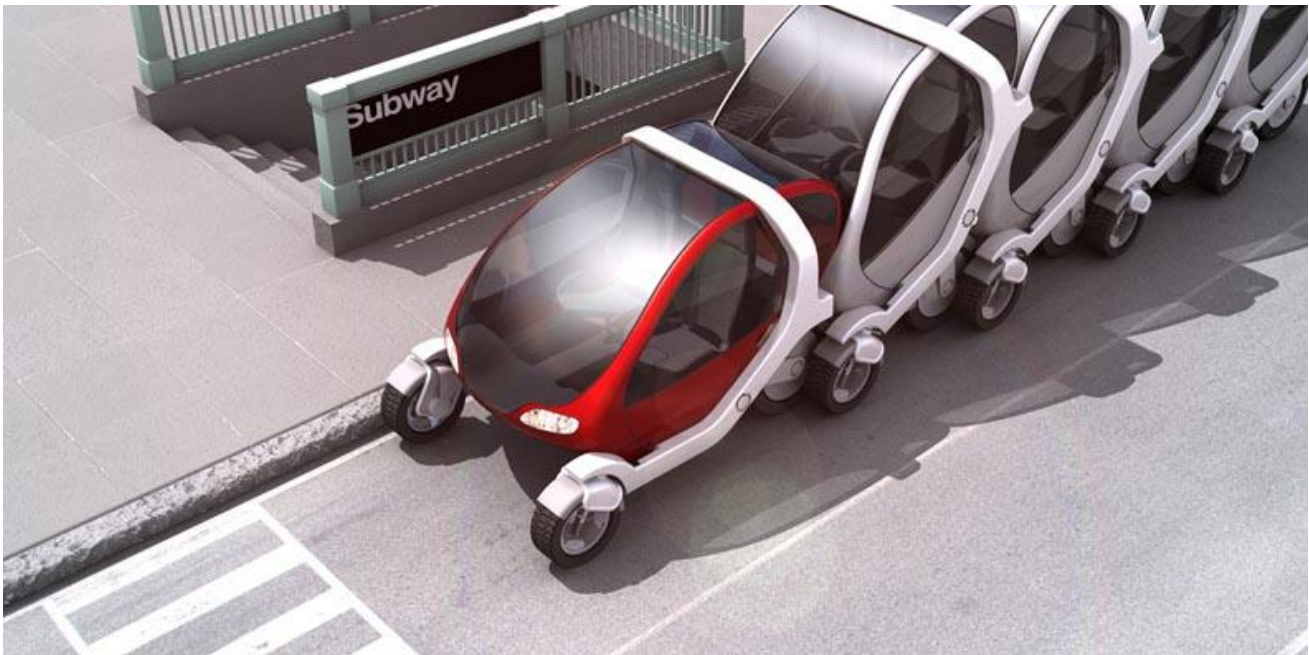
DESMOD



Instructions:

- Each team can choose to solve any one of the problem statements.
- Only one entry per team is allowed
- Any accepted CAD software can be used. E.g.: Solid works, Catia, ProE, Autodesk inventor etc. For detailed analysis, software such as Ansys, Fluent, MSC Adams, etc. can also be used if necessary.
- Participants have to mail their Team Description Papers (TDP) for the preliminary round. The selection for the finals would be based on this.
- The designs can be altered for the finals but change of problem statement will not be entertained
- The participants are expected to perform dynamic simulation. (Stress analysis, flow/thermal analysis, and mechanical simulation if any) They would carry value points
- Participants are requested to include all features of their design in the Team description Paper (TDP) and if possible an animation of their mechanism
- PLAGIARISM, in any way, is strictly prohibited

Problem Statement 1: Collapsible and stackable city cars



Introduction:

Problems associated with the massive adoption of automobiles have become the centre of a world-wide debate. While it seems inevitable that upcoming technologies will eventually develop a sustainable solution to the environmental concerns, cities will continue struggling to accommodate the increasing number of cars because of one simple reason: limited space. The solution to this problem is to design a compact car for use within city.

Problem Statement:

The challenge is to design a car for two people that occupies minimum parking space and can fulfil the requirements of a city car. The car must have an ability to collapse and interlock with another similar unit when not in use.

Note:

- The ability to stack also suggested the creation of a fleet of vehicles for shared use, similarly to the way shopping carts are used in a supermarket.

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- Users do not own one car in particular; they are members of a program by which they have access to a vehicle when they need one.
 - These stacks act as “car dispensers”, so people who need personal mobility simply pick the first vehicle from the stack and drive away. When they reach their destination, they return the car to the back of another stack.

Following factors to be kept in mind during the design phase

1. Stress analysis, Flow / Thermal analysis, Mechanical simulation will carry special value points.
2. Design must include the body and chassis of the car. No need of making the engine of the car.
3. Manufacturability of the components involved.
4. Structural Stability.
5. Failure or near failures should be strictly avoided.

Problem Statement 2: Cycle convertible to Wheel Chair



Introduction: Riding a cycle is a pleasure to everyone. To make the cycle used by everybody the design of cycle to wheel chair converter can be used. This wheel chair converter is useful for all including physically challenged people.

Problem Statement:

The challenge is to design a cycle which can be converted to a wheel chair with the help of mechanical mechanisms.

Factors to be considered while designing:

1. The mechanism should be completely mechanical and manually operated.
2. Manufacturability of the components involved.
3. Structural Stability.
4. Failure or near failures should be strictly avoided.
5. The mechanism of conversion should be simple.
6. Stress analysis, Flow / Thermal analysis, Mechanical simulation will carry special value points.

Problem Statement3: Compactable Furniture



Introduction: Nowadays the furniture's are too big to carry from one place to another place. There is an increasing demand to design the furniture that can be compacted in a small volume and which can be retracted to its original shape by some interlock mechanisms.

Problem Statement: To design a double bed which can be compacted to the small volumes and which can be reassembled to its original shape with the use of interlocking mechanism.

Factors to be considered while designing:

1. The reassembling mechanism should not be done with bolts and screws. It should be easily assembled.
2. Factors like efficiency of the volume utilised in the design will also be considered.
3. Bonus points for combining multiple furniture's together into small volume i.e. getting multiple furniture's from single compacted box.

4. Ease of transporting will also be considered.