NexTech: Portable Accident Screen

Objective

To develop a screen system that can be deployed by first emergency responders to block the view of accident scenes from passing motorists in order to prevent rubbernecking, avoid secondary accidents caused by the visible distraction of the first incident, and maintain the regular flow of traffic.

Customer requirements

- Stands stably when subjected to various weather conditions
- Fits in the trunk of a vehicle
- Assembles and disassembles quickly
- Blocks the view of the accident
- Assembles and disassembles with as few operators as possible

Engineering characteristics

- Deployed dimensions
- Portable dimensions
- Maximum wind load able to withstand
- Safety of system

Constraints

- Size
- Weight
- Cost

Concept Generation

The team decided to pursue a telescoping pole design with a detachable thick-mesh screen and collapsible support legs.

Prototype and Testing

To demonstrate functionality, stability, and portability. Future testing will include FEA analyses of the stresses and deformations caused by various wind loads, stability tests, and evaluation of ease of use.

Prototype and Testing

PROTOTYPE SUPPORTED MATERIALS

- Support Materials: Wood, PVC, Aluminum
- Screen Material: Rip-Stop Nylon
- Deployed Size: 6' x 9'
- Final Design: Plastics, Lightweight Metals
- Screen Material: Lightweight Mesh
- Deployed Size: 10' x 15'

2 tests will be conducted with the prototype this week:

- A uniform load test to model wind conditions
- Timed trials of set-up and take-down of the device by one person and by a pair of individuals

Future Work

Business plan

- Apply for patent
- Present idea to police forces, legislative bodies, and traffic safety organizations
- Launch awareness campaign
- New legislative requirements or police procedure guidelines in place

Conclusions

- The Portable Accident Screen effectively addresses a major traffic related issue in the United States affecting much of the population
- Market size and design advantages imply business feasibility

ENME472 - Integrated Product and Process Design and Development

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