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# GENERAL ROBOTICS: URBAN SEARCH AND RESCUE LAB DESIGN PROPOSAL

**DUE: MARCH 21<sup>st</sup> 2007**

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CURF requires your team to submit a design proposal outlining the plans for a USAR vehicle project. The most important part of this report is the design iteration process. This is the process of sifting through tradeoffs; a design that works well may be difficult to build or a design that is reliable may be slow. You should pay attention to these tradeoffs as you write your proposal. At this point, you do not have to demonstrate any kind of working prototype. Your report should contain the following sections:

## **Introduction**

## **Objectives**

Include a minimum of 5 metrics of how to evaluate your robot (e.g. maneuverability, ease of construction, etc.).

## **Design Alternatives**

At least three design alternatives with sketches. The sketches may be hand drawn and scanned in. Write a paragraph describing why each design was eliminated. (NOTE: you should refer to the metrics defined in your objectives for this).

## **Proposed Design**

- ❖ Address the following issues for the design chosen:
- ❖ Name: each team is required to name their robot
- ❖ Description
- ❖ Drawing: a drawing is step above a sketch – it should include an overall picture, a picture of subsystems (e.g. drive train, electrical schematic)
- ❖ Potential Pitfalls of this Design
- ❖ Advantages/Disadvantages of this design in terms of metric outlined in objectives
- ❖ Theory of Operation: how will it work?
- ❖ Plan of Implementation: how will you build it?
- ❖ Evaluation: how will you test your design? (e.g. try different inclines)
- ❖ Comment on size, centroid, top speed, turning radius
- ❖ Control Architecture
- ❖ Innovation: what makes your design special?
- ❖ Extra Parts: anything you want to use that is not part of the kit should be listed here.

## **Conclusion**