Project Overview

- Smart devices will require easy-to-deploy networks.
    - No base stations, cables, management.
- Ad-hoc networks promise minimal deployment effort.
    - Nodes forward each others packets: multi-hop.
    - Previous ad-hoc techniques don't scale well.
- CarNet investigates *scalable* ad-hoc networking.
- CarNet techniques:
    - Geographic forwarding (Grid).
    - Scalable distributed location service (GLS).
    - Automatic self-configuration.

Progress Through December 2000

¥ Design, simulation, and analysis of GLS
- Presented at MOBICOM 2000 conference.

- Implementation of basic Grid software.

  - Platform is Linux and Compaq iPaq palmtops.

- Designed power-saving radio protocols.

- Investigated theoretical capacity of ad-hoc networks.

- Extended design for nodes w/o position information.
  - "Borrow" positions of other nearby nodes.

Research Plan for the Next Six Months

- Deploy a large test network.
  - Combination of iPaqs and fixed relays.
  - Enough nodes for meaningful analysis.
  - Collect real motion and communication patterns.
  - Data will feed back into design and simulation.

- Continue development and design:
  - Location-aware applications.
  - Low-power protocols.