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.
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.