PDA-Based Tour Guide Application

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Background: Motivation

- Structures equipped with wireless provide extra functionality
- Tours are costly, impersonal, and fixed
- Tours generate interest in the University, but at a cost of staffing
- Many new students struggle to find their way around campus

Background: Goals

- Quick runtime, small memory usage
- Run on provided Dell PDA's
- Help within application
- Map of floor plan always accessible

The Dell Axim X30 Pocket PC

Background: Goals

- Intuitive user interface
- Avoid screen clutter
- Multiple tour / information types supported
- Free Walk and Guided Tour modes

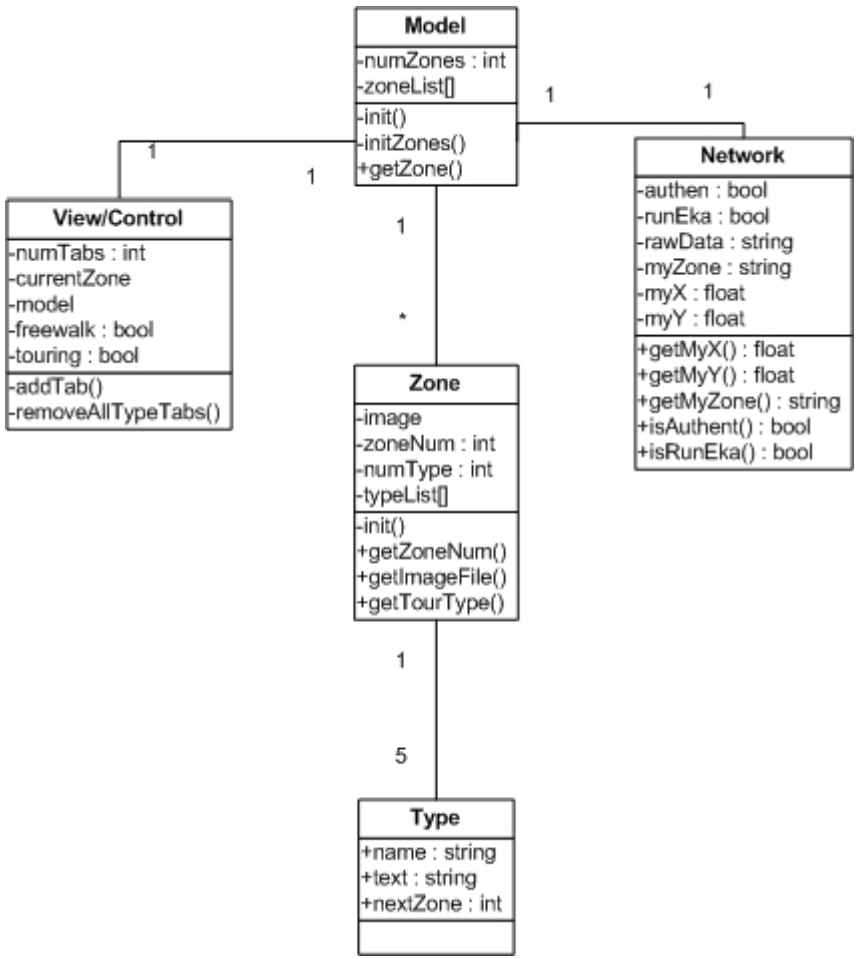
Project Narrative

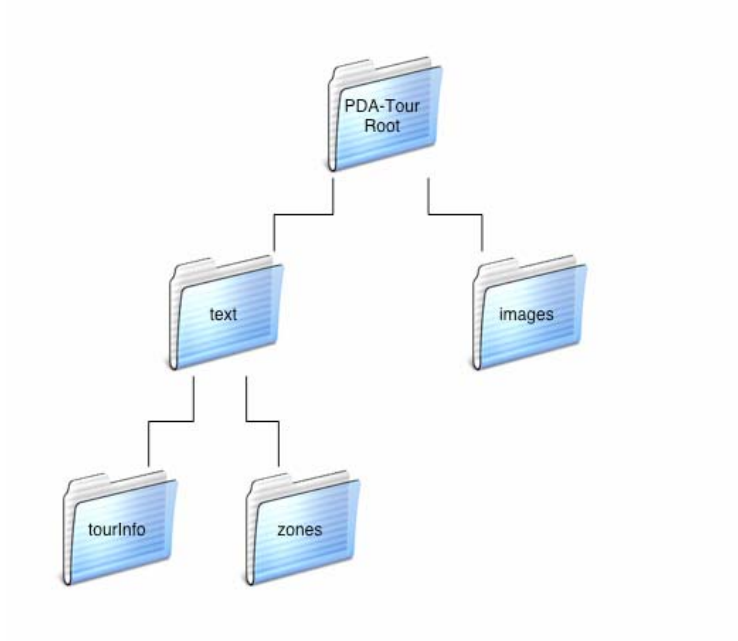
- Early timeline and division of labor
- Lengthy joint development sessions and frequent personal contact
- Extreme programming

Extensibility

- Became an important focus; wanted to make application more flexible
- Zone descriptions and images loaded at run time
- Detailed file management instructions available in manual

Project Demonstration





Next Steps

- Tools for tour design
- Expansion of tours
- Expansion into the CS building
- Tours without wireless positioning
- Path-finding, general navigation
- GPS compatibility

Assessment

- Technological limits to goal: Ekahau, Compact Framework
- Both touring modes work well when Ekahau runs properly
- Multiple tour types supported
- Finds location within limits of Ekahau

Assessment

- Support for free walking
- Support for guided tours
- Includes over five sample stops with information for different tour types
- Map tab makes location readily accessible

Lessons Learned

- Up-close and personal solves and avoids problems better than e-mail
- Apply technological leverage towards the greatest good
- A little bit of extreme programming
- What works on the big may not work on the small

Lessons Learned

- Development, development, development on the Pocket PC
- C# and .NET
- PDA networking capabilities are limited
- Balancing trade-offs in speed, complexity, and robustness

Lessons Learned

- Compact Framework has some specific limitations:
  - Retrieval of hardware address requires unusual workaround
  - Network timeouts are always infinite
  - Devices act differently when synced with a PC

Questions?