GeoAccess *RC1*

18th December 2006

Introduction

- Problem Analysis
- Data Collection & Processing
- Accessibility Model
- Software Description
- Analysis Results
- Future Development

Problem Analysis

- Accessibility
  - "term used to describe the ***relative*** ease or difficulty in ***reaching*** a destination"
    - effort measurement
    - reach Entertainment points
    - transportation infrastructures network

Data Collection

- Time consuming process
- Three counties area
- Demographic Information
- Roads & Bus Schedules
- Entertainment Places

Data Processing

- Provided
  - Counties boundaries
  - Population
  - Roads
- Processed
  - Bus Schedules
  - Entertainment Places
  - Demographic Information

Accessibility Model

- ***Number*** to classify accessibility
- Relating
  - Demographic information
  - Transportation infrastructures

Accessibility Model

Age	Private Transportation	Public Transportation
[0,18]	0%	25%
]18,25]	15%	30%
]25,30]	30%	15%
]30,45]	45%	10%
]45,65]	10%	5%
]65, +inf]	2,5%	1,25%

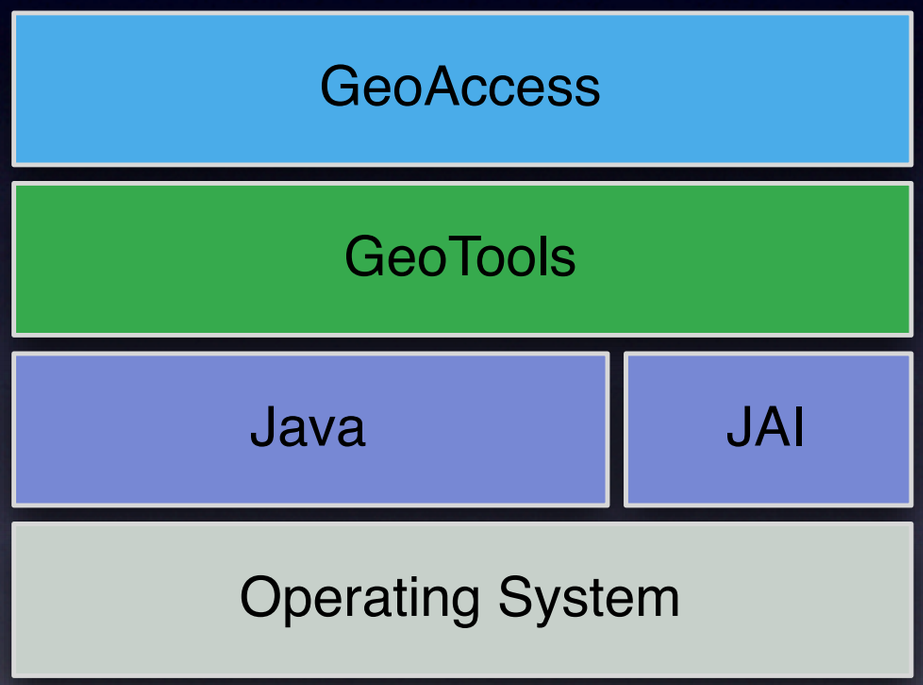
Accessibility Model

Wage (in SKK)	Private Transportation	Public Transportation
[6900,18000]	25%	17%
]18000,25000]	40%	10%
]25000,+inf]	60%	3%

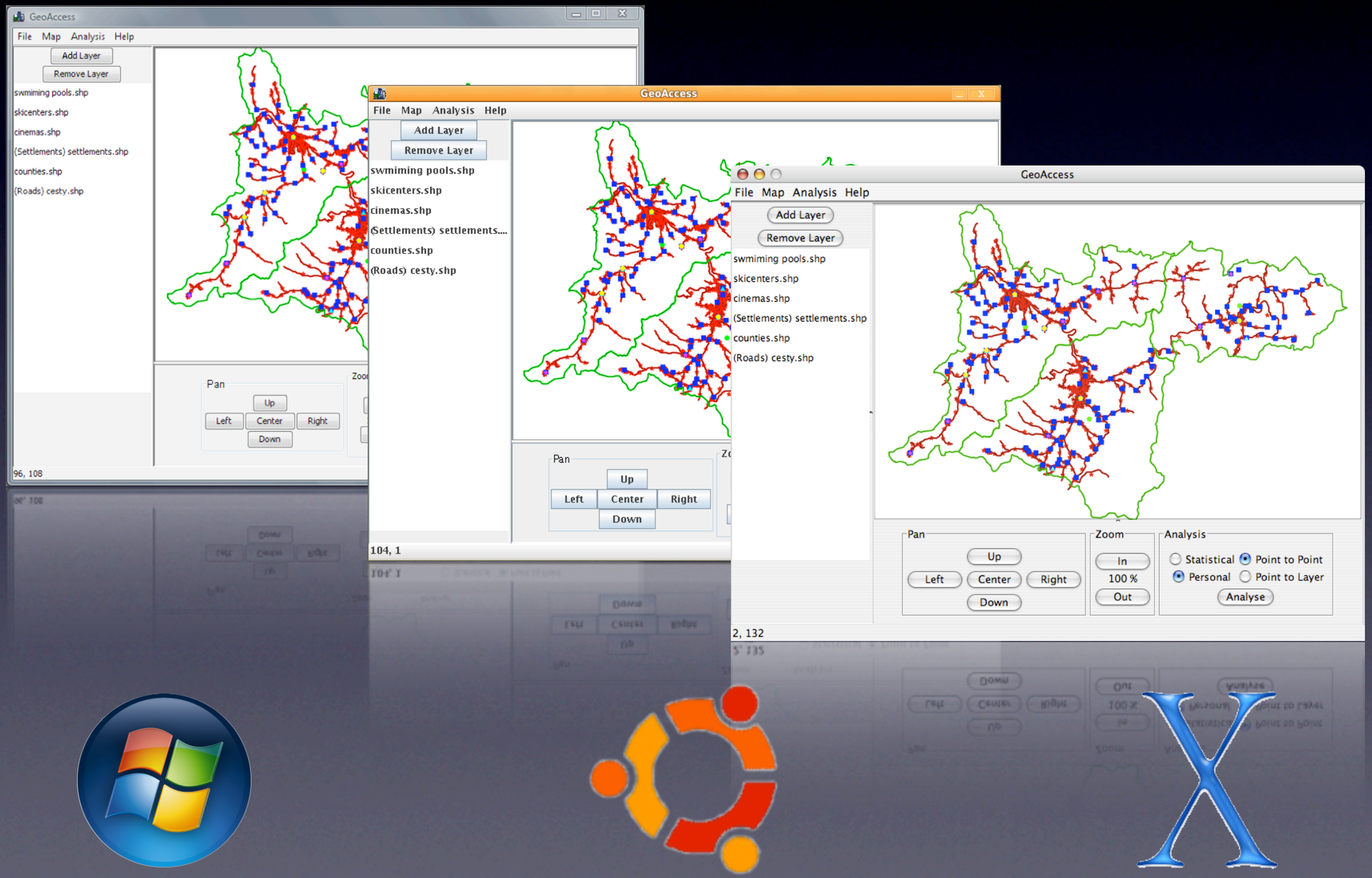
Accessibility Model

- Traveling Time
  - Private Transportation
  - Public Transportation
- *"Traffic Jam"* simulator
  - people usage expectations
  - road capacity
- Effective traveling speed

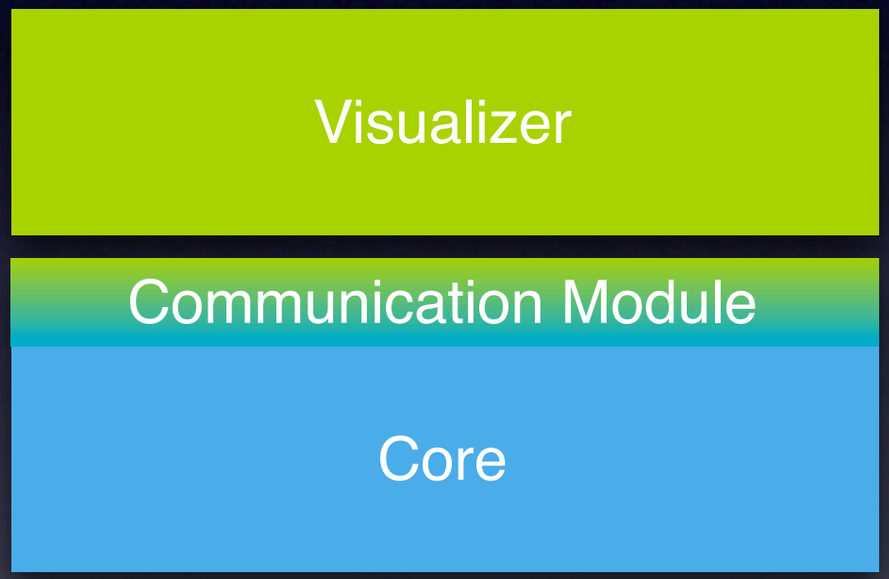
Software Description



Software Description



Software Description



Software Description

- First release with 4689 lines of code
- Objectives achieved
  - runs on Linux, Mac OS X and Windows XP & Vista
  - Stable *Core* capable of
    - measure accessibility based on distance and time
    - area independent analysis
    - communicate with multiple Visualizers
  - *Core & Visualizer* as a standalone application

Analysis Results

- Case study - John Doe
  - Personal, Point to Point
  - age, wage, origin & destination
    - 20 years old, 7000SKK wage, settlement to cinema

Analysis Results

- John Doe Classification

Age	Private Transportation	Public Transportation
]18,25]	15%	30%

Wage (in SKK)	Private Transportation	Public Transportation
[6900,18000]	25%	17%

- Distance & Time traveling
  - Distance: 31 km
  - Private transport time: 54 min.
  - Public transport time: 28 min.

Analysis Results

- Demographic indicators
  - Private age indicator: 11 persons
  - Public age indicator: 21 persons
  - Private transport wage indicator: 136 persons
  - Public transport wage indicator: 92 persons

Analysis Results

- Time Efficiency
  - Private Efficiency: 54 min.
  - Public Efficiency: 28 min.
- Time Efficiency
  - Time indicator: 41 min.
  - Accessibility: 45 km/h

Analysis Results

- What if...

Before

Class	Speed Limit (km/h)	Capacity (unit/km)
0	90	55
1	55	40
2	48	30
3	30	15
4	15	5

After

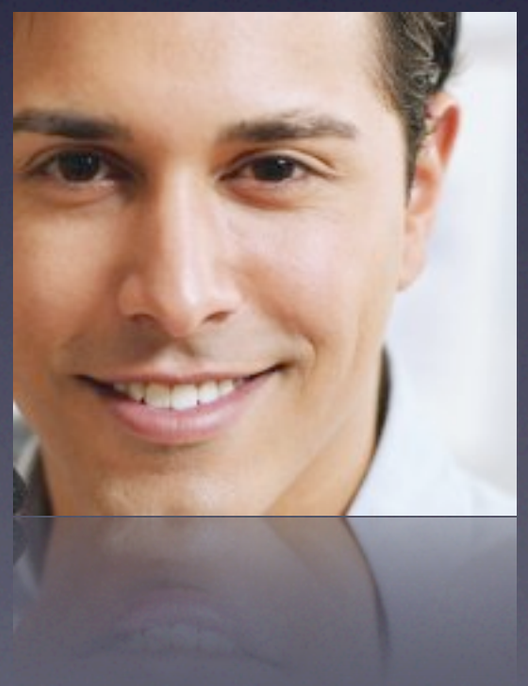
Class	Speed Limit (km/h)	Capacity (unit/km)
0	130	90
1	90	74
2	80	63
3	65	39
4	50	21

Analysis Results

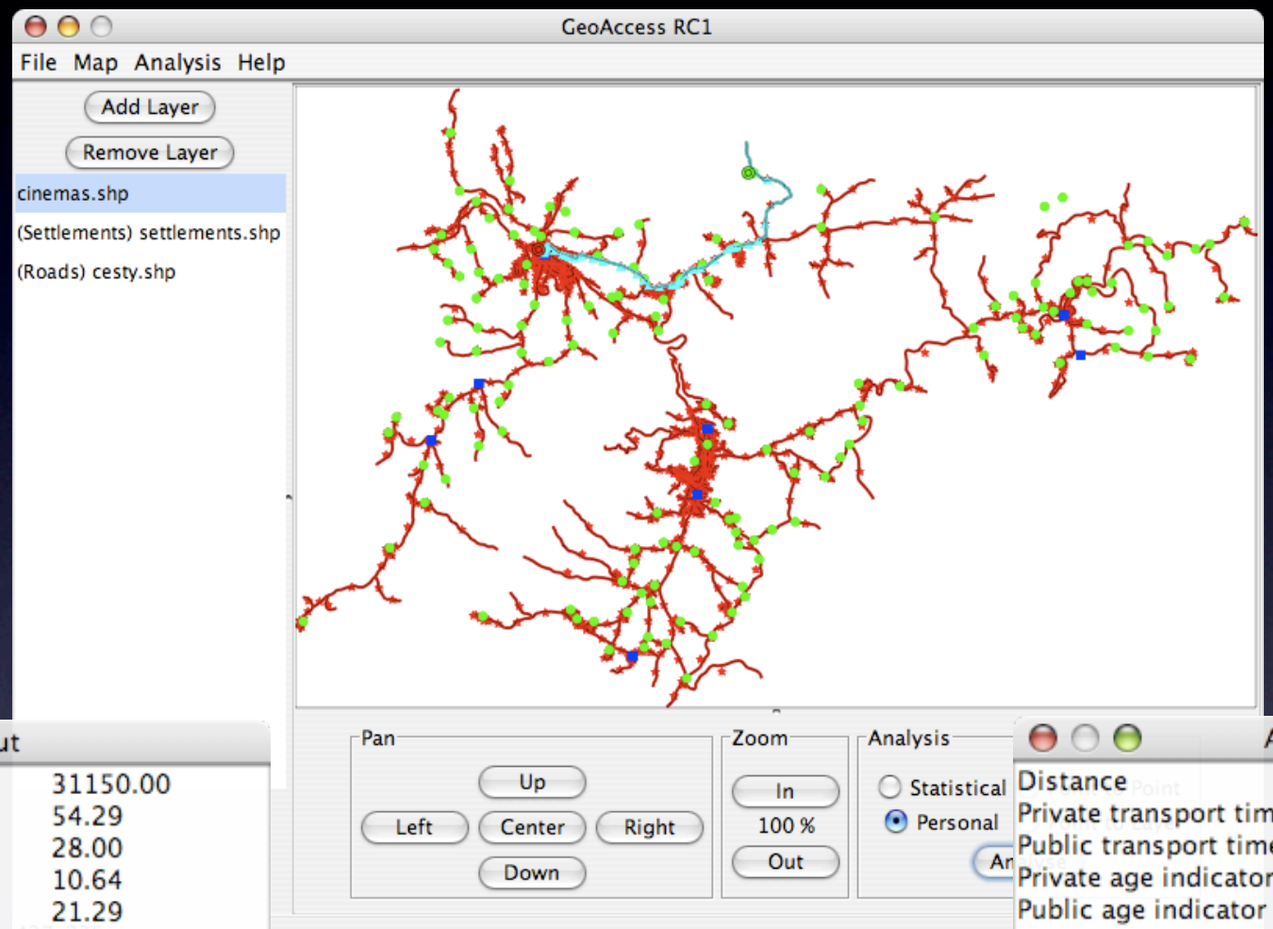
- Distance & Time traveling
  - Distance: 31 km
  - Private transport time: 26 min.
  - Public transport time: 28 min.

Analysis Results

- Time Efficiency
  - Private Efficiency: 26 min.
  - Public Efficiency: 28 min.
- Time Efficiency
  - Time indicator: 27 min.
  - Accessibility: 69 km/h



Analysis Results



Analysis Results Output

Distance	31150.00
Private transport time	54.29
Public transport time	28.00
Private age indicator	10.64
Public age indicator	21.29
Private transport wage indicator	135.68
Public transport wage indicator	92.26
Private Efficiency	54.29
Public Efficiency	28.00
Time indicator	0.68
Accessibility	45.42

Before

Analysis Results Output

Distance	31150.00
Private transport time	26.37
Public transport time	28.00
Private age indicator	10.64
Public age indicator	21.29
Private transport wage indicator	135.68
Public transport wage indicator	92.26
Private Efficiency	26.37
Public Efficiency	28.00
Time indicator	0.45
Accessibility	68.74

After

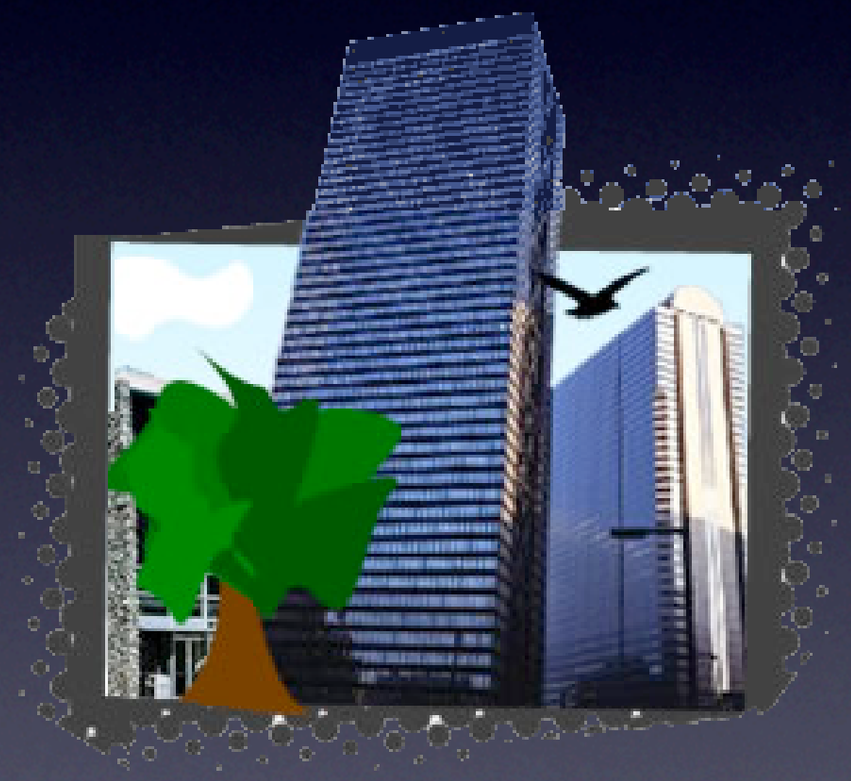
Future Development

- Application
  - Usability aspects
    - Error handling
    - User-friendly
  - Implement More Features
    - View and edit *Shapefiles*
    - Socket-based Communication Module
  - Analysis Generalization
    - Generalize Model

Future Development

- Analysis Model
  - Introduce variables
  - Improve path finder
    - fastest way *vs.* shortest path
    - best capable road
  - Study other type of final results

Thank you



http://gisampro.sourceforge.net