

Transfer of knowledge through an interactive map exhibit

Combining game aspects, statistical data and the ArcGIS Runtime SDK for WPF to spark children's interest in local statistics

Philippe Rieffel – ILS, Research Institute for Regional and Urban Development, Dortmund, Germany
philippe.rieffel@ils-forschung.de

Exhibit for the “MS Wissenschaft”

The ILS participated in this year’s touring exhibition aboard the “MS Wissenschaft”, a remodeled cargo ship

The ship toured 4½ month on German and Austrian inland waters, carrying an interactive exhibition

“The demographic change – chances and challenges”

ILS presented migration data & empirical investigation on choices of living area as interactive exhibits



Quelle: T. Gabriel / 3pc

Exhibit

Data

Technology

Software

Data

- | Migration data on district levels from the Research Data Centres of the Federal Statistical Office and the Statistical Offices of the Länder
- | Data aggregation on different age groups and different time frames
- | Different migration motive for each age group

Data

Career entry migration	15 - 29 years
Education migration	18 - 24 years
Family migration	30 - 49 years and 18 years and below
Middle aged migration	50 - 64 years
Elderly population migration	65 years and above
Total migration	all ages
Time frame	2001-2011

Technology

- | Microsoft Kinect Sensor & C# Framework



Technology

- | Big screen LCD with solid mounting construction and Slot-In PC with SSD



Technology

- | ArcGIS Runtime SDK for WPF
- | Fizbin.Kinect.Gestures framework



Software

- | Software development in C#
- | Connecting the Kinect, the gesture processor and the esri SDK

```
<Window
    x:Class="Kinect_initialisieren.MainWindow"
    xmlns="http://schemas.microsoft.com/wfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/wfx/2006/xaml"
    xmlns:viewer="clr-
namespace:Microsoft.Samples.Kinect.WpfViewers; assembly=Microsoft.Samples.
Kinect.WpfViewers"
    xmlns:esri="http://schemas.esri.com/arcgis/client/2009"
    Title="MainWindow" Height="1080" Width="1920"
    WindowStyle="None" ResizeMode="NoResize"
    WindowStartupLocation="CenterScreen" WindowState="Maximized"
    UseLayoutRounding="True">
    <Grid x:Name="mainGrid" ShowGridLines="False">
        <Grid.Resources>
            <esri:SimpleFillSymbol x:Key="eins" Fill="#0070A3"
BorderBrush="#6E6E6E" BorderThickness="1" />
            <esri:SimpleFillSymbol x:Key="zwei" Fill="#2D92BD"
BorderBrush="#6E6E6E" BorderThickness="1" />
            <esri:SimpleFillSymbol x:Key="drei" Fill="#81BFDB"
BorderBrush="#6E6E6E" BorderThickness="1" />
            <esri:SimpleFillSymbol x:Key="vier" Fill="#FFFCE6"
BorderBrush="#6E6E6E" BorderThickness="1" />
            <esri:SimpleFillSymbol x:Key="fünf" Fill="#F5BACE" />
        </Grid.Resources>
    </Grid>
</Window>
```

Software

Developed software converts user gestures into UI interactions

Gestures for zooming/panning, change of topic/year

Final result: Interactive map controlled through user gestures

Kinect

- Capture and identify user skeleton



Gesture processor

- Recognize gesture



Map application

- UI interaction based on gesture

RECHTE HAND

Karte nach OBEN



Karte nach UNTEN



Karte nach LINKS



Karte nach RECHTS



BEIDE HÄNDE

AUSZOOMEN
(Hände zusammen)



EINZOOMEN
(Hände von der Mitte auseinander)

Demonstration Video

Thank you

Philippe Rieffel

Philippe.rieffel@ils-forschung.de

ILS – Research Institute for Regional and Urban
Development gGmbH Dortmund, Germany

<http://www.ils-forschung.de>

<http://www.ms-wissenschaft.de>