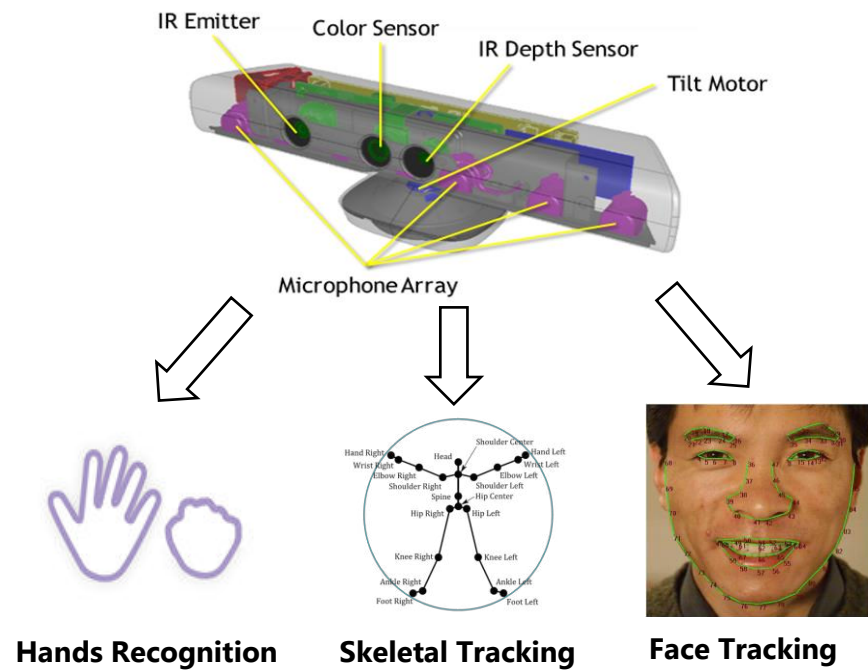# Using Microsoft Kinect Device for Natural User Interface

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Microsoft Kinect for Windows

IR Emitter, Color Sensor, IR Depth Sensor, Tilt Motor, Microphone Array

Hands Recognition   **Skeletal Tracking**   **Face Tracking**

User Subjective Tests

Level of Usability Tests

Investigates subjective aspects of practical use and intuitivity of the touch-less interaction.

Point & Wait   Grip

Challenging — Intuitive
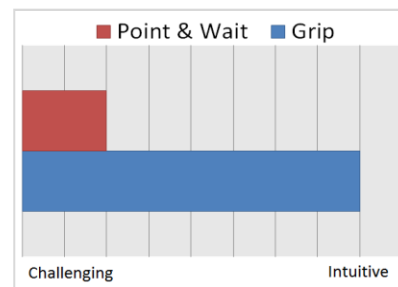
Level of Comfort Tests

Investigates subjective level of user's fatigue and comfort during the touch-less interaction.

Planar PhIZ   Curved PhIZ

Comfotable — Fatiguing
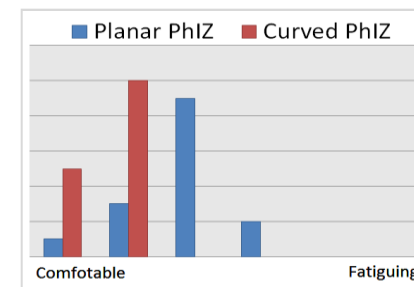
Implementation

The final implementation has been based on results of the User Subjective Tests and it consist of the following most intuitive and comfortable solutions:

Grip Action   **Curved PhIZ**

Interaction Detection   **Advice System**

StepLeft,
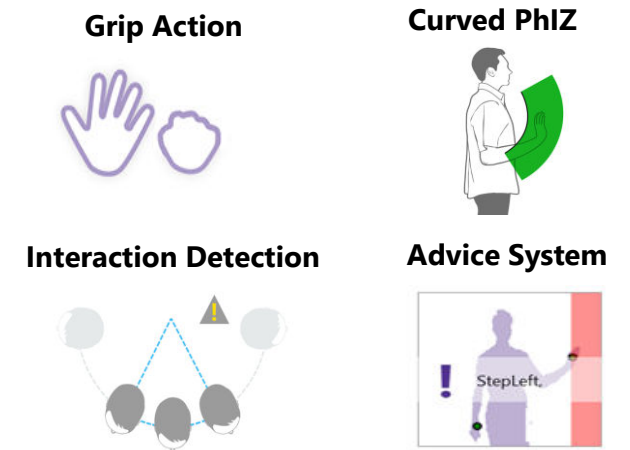
Design of Touch-less Interface

Action triggers

Two methods for recognizing click and drag actions.

Grip

Point & Wait

Physical Interaction Zone (PhIZ)

Two methods for hands position mapping onto screen.

Curved PhIZ

Planar PhIZ

User Interaction Quality Detection

Recognizes user's intent to interact and gives advices for better experience.

Detection

Advices

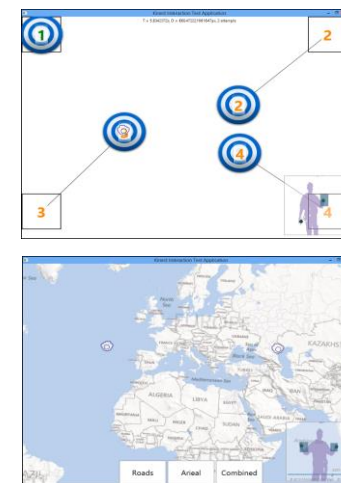StepLeft,
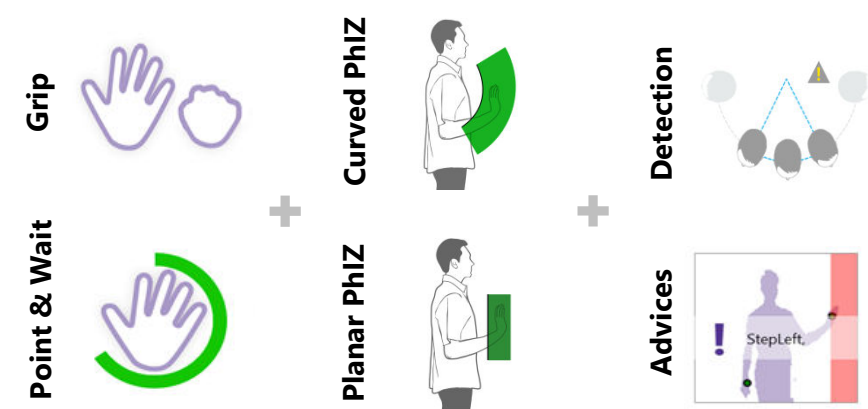
Prototypes

Windows 8 Control

Protoype integrating touch-less interaction with Windows 8 UI through the multi-touch interface.
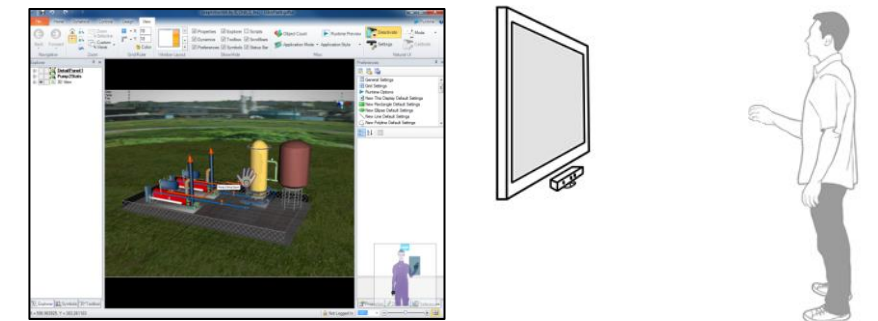

Test Application

A set of 4 prototypes containing 6 test for investigating a level of comfort and usability for all combinations of PhIZ designs and action triggers.

Final Application

Integration with ICONICS GraphWorX64™

The final implementation of the touch-less Interface has been successfully integrated with the visualization and automation software, the *ICONICS GraphWorX64™*, as demonstration of practical use of the interface in real case scenario.