Andrej Černivec & Ciril Bohak - Using Kinect for touchless interaction with existing applications
Content

• Introduction
• Related work
• Our system
• Conclusions
• Future Work
Introduction

• touch-less interaction (via Kinect, Wii, PS Move) mostly used for games, interactive instalations, ...

• several attempts on using for different scenarios (custom kiosks, puppetiring, motion capture, ...);

• custom solutions for individual use cases:
  – expensive
  – problem with extensions
  – content not usable elsewhere.
Related work

• **Kinect web kiosk framework:**
  - kiosk sistem for serving predefined content packages based on web interface;
  - web-based approach to implementation of the system, for easier administration and content refreshment.

• **Kinect kiosk user experience evaluation**
  - evaluation of kinecs kiosk system from user point of view;
  - determining best GUI preferences for use with individual setup;
  - proposal for “self-calibration” of the system.
Our system (1)

System structure:

- computer with Windows operating system runs our middleware application and triggers the system calls;

- Microsoft Kinect is used for robust tracking of the user and offers easy integration through the Kinect SDK;

- screen is used to display the content and give user feedback on his/hers actions;

- system was tested with web browser for brosing the internet as well as with
Our system (2)

- Basic system structure:
  - Kinect for Windows SDK;
  - Coding4fun Kinect Toolkit;
  - InputSimulator.

- The system takes care for input handling and supports interaction with native applications.
Our system (3)

Supported gestures:

- moving the cursor by moving the right hand;
- clicking by closing the right hand palm;
- dragging by closing the palm of the right hand and moving;
- zooming in / out by closing both palms and move hands together / apart;
- scrolling by closing left palm and moving the right one;
Our system (4)

• System shows instructions when user is recognised;

• system robustly tracks the user and ignores bypassers that get into detection area;

• system recognises gestures and triggers appropriate action for interactin with applications.
Example application

• is a dedicated web-based game for navigating the labyrinth;

• the goal is to “grab” the white square at the start of the labyrinth and move it along the platform to the finish;

• game was designed for ordinary use with mouse as well but with idea of testing the developed system and presenting it to the public.
Conclusions & Future Work

• system can be used for kiosk-based applications, in our case an interactive game;

• user is robustly tracked and the system is not distracted by the actions in the background;

• there are rare applications that allow such interaction due to UI limitations;

• implementation of intermediate application for web browsers that would adapt the displayed page for easier interaction (snap action);

• implementation of more gestures, such as right-clicking, onscreen keyboard with auto-completion.
Questions & comments