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Using Kinect for touchless interaction with existing applications

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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.
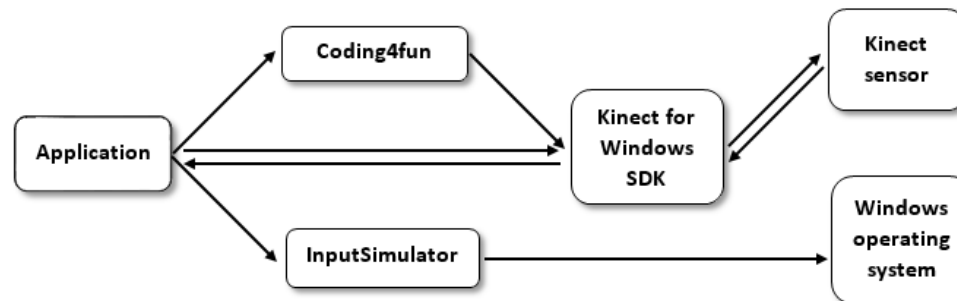
Our system (1)

System structure:

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

- Microsoft Kinect is used for roboust 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
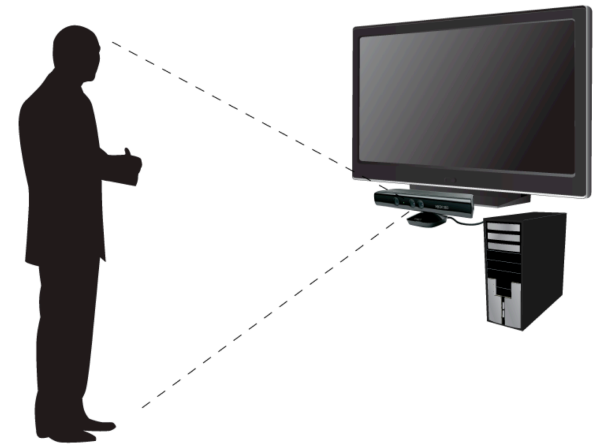
Our system (2)

- 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 roboustly trackes the user and ignores bypassers that get into detection area;

- system recognises gestures and triggers appropriate action for interactin with applications.

Kinect Kiosk aplikacija

Pozdravljeni v Kinect kiosk aplikaciji. Spodaj so vam na voljo navodila za možne ukaze.— Z desno roko izberite eno od opcij!

Example application

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

- the goal is to "grab" the white sqare 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.
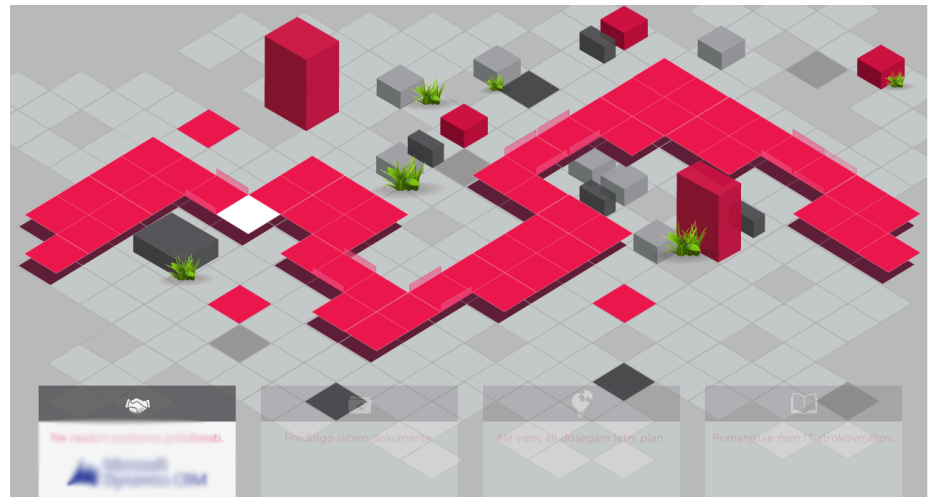
Conclusions & Future Work

- 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

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