

Web GIS in practice X: a Microsoft Kinect natural user interface for Google Earth navigation



Boulos, M. N. K., Blanchard, B. J., Walker, C., Montero, J., Tripathy, A., & Gutierrez-Osuna, R. (2011). International journal of health geographics, 10(1), 45.

Introduction

- Kinoogle
 - a Kinect interface for natural interaction with Google Earth
- Discuss Kinoogle
 - usability
 - NUIs for controlling 3-D virtual globes
 - use scenarios

Application beyond playing games

- Many developers and research groups around the world are exploring possible applications of Kinect
 - go beyond the original purpose as home entertainment and video game controllers
- Novel applications
 - 3D and enhanced video teleconferencing
 - assist clinicians in diagnosing a range of mental disorders in children
 - a more practical use of the device to control medical imaging displays

Kinoogle

- Kinoogle allows the user to control Google Earth through a series of hand and full-body gestures.
- Hardware and Third party software
 - Microsoft Kinect
 - allows Kinoogle to accurately track different parts of a human body in three dimensions
 - OpenNI driver 、 NITE Middleware 、 OpenGL 、 Google Earth
 - Natural User Interface (NUI)

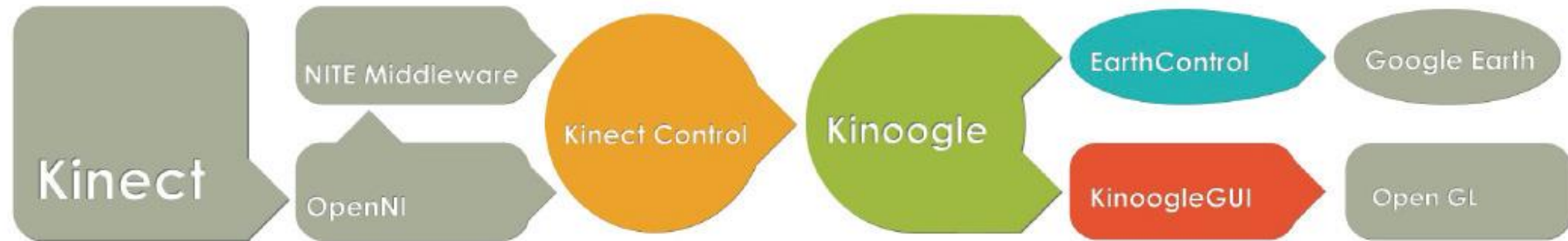
Kinoogle

- OpenNI → user tracking, skeleton tracking, and hand tracking
- NITE → image processing
- OpenGL → graphical user interface (GUI)
- Google Earth → visual imagery of Earth locations on a 3-D globe

Kinoogle

- KinectControl、Kinoogle、EarthControl、Kinoogle GUI

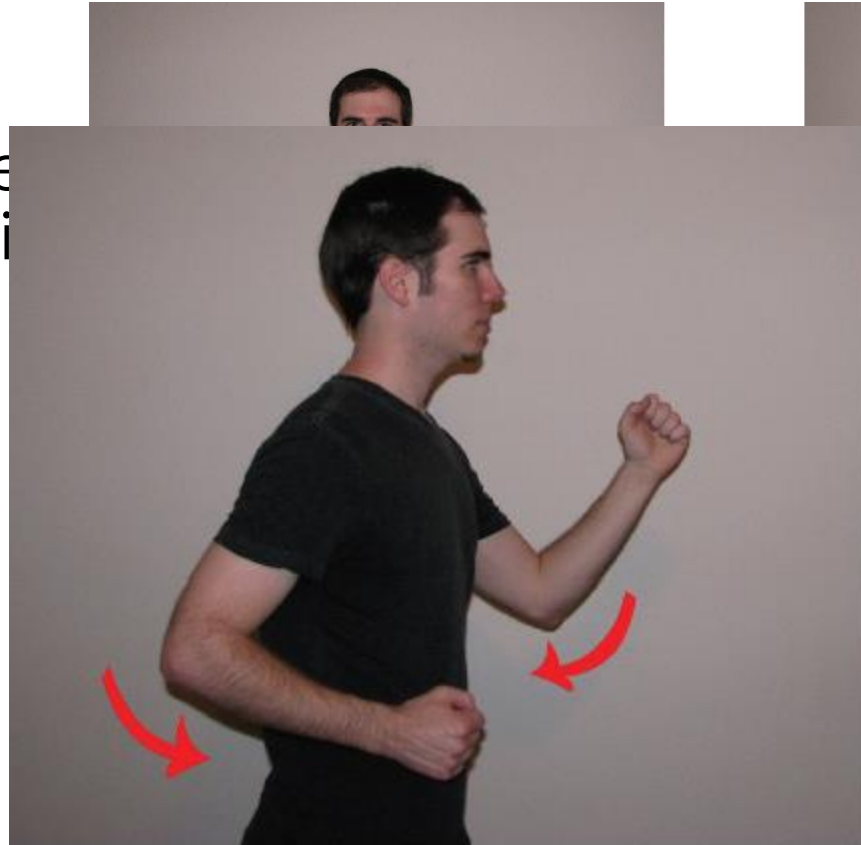
event flowchart



Kinoogle

- Kinoogle

- determine poses for i
- Planning
- Zooming
- Rotation
- Tilt
- Walking
- Turning



(a)



(c)

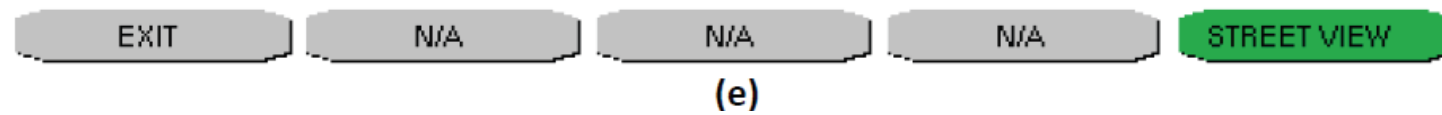
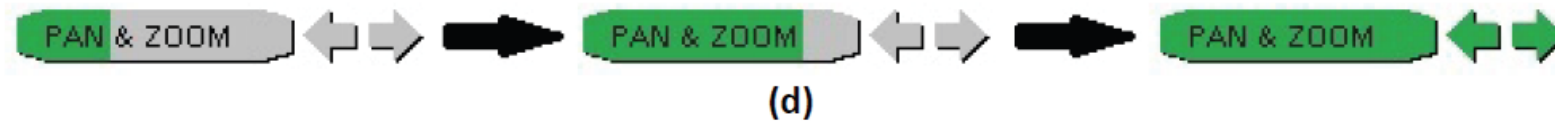
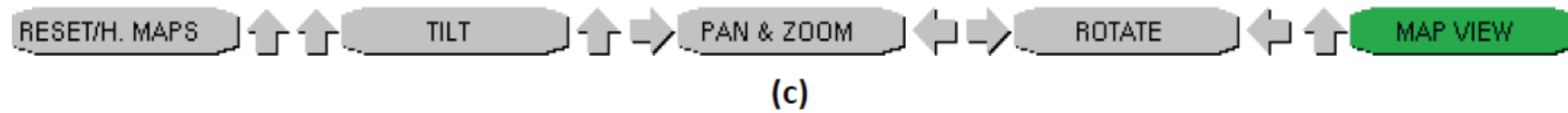
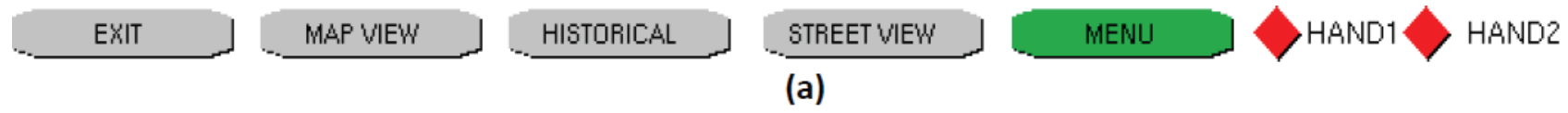


(b)



(d)

Kinoogle



Discussion and conclusions

- Kinoogle offers a good example of a natural interface with Google Earth and Street View
 - only body movements and gestures
 - virtual tourism
 - physical exercise and burn calories
- Besides hand and body gestures
 - voice commands