SILC Plugin User Manual

1. Brief introduction of program

The aim of this program allows users to use their body motion to navigate and get information in UC-win/Road supported by Kinect SDK. The realization of the program works in the following process: users conduct certain body movements (e.g. wave right hand over head), which can be captured by Kinect device; then the motion captured will be recognized as Kinect skeleton motion, which will be transferred into certain instruction by Kinect SDK; these specified instructions can executed in UC-win/Road plugin (powered by Delphi and UC-win/Road SDK) and reflect in UC-win/Road. The user experience provided by this program is unique, immersive and innovative because of the application of Kinect for Windows sensor, providing a new way of human-computer interaction to really “walk” in models and “catch” their information in UC-win/Road.

2. Runtime environment

You can see the requirements of Kinect for Windows V2 and UC-win/Road. Below are the basic requirements of runtime environment.

2.1 Minimum hardware requirement for PC

Processor: 1 gigahertz (GHz) or faster processor or SoC

RAM: gigabyte (GB) for 32-bit or 4 GB for 64-bit

Hard disk space: 16 GB for 32-bit OS 20 GB for 64-bit OS

Graphics card: DirectX 9 or later with WDDM 1.0 driver

Display: 800x600

2.2 Software requirement

Windows 8 or later

SQL Server 2008 R2 or later

UC-win/Road Ultimate ver.10 or later

3. Setup guide

a) Copy the program file “SILCPlugin.bpl”, “SILCPLugin.drc” to UC-win/Road Data Path\Plugins\.
b) Copy the whole “SILCPlugin-Kinect” folder to the UC-win/Road install path\Plugins\.
c) Then restore SQL database from file SILCDatabase.bak.

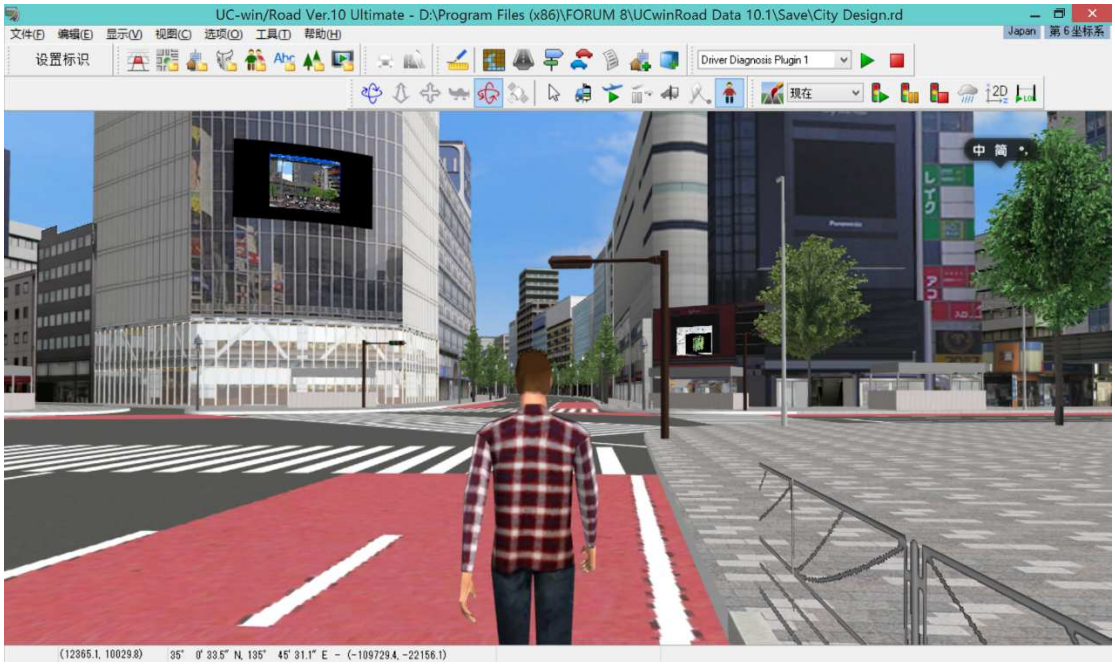
4. Operating guide

4.1 Attention

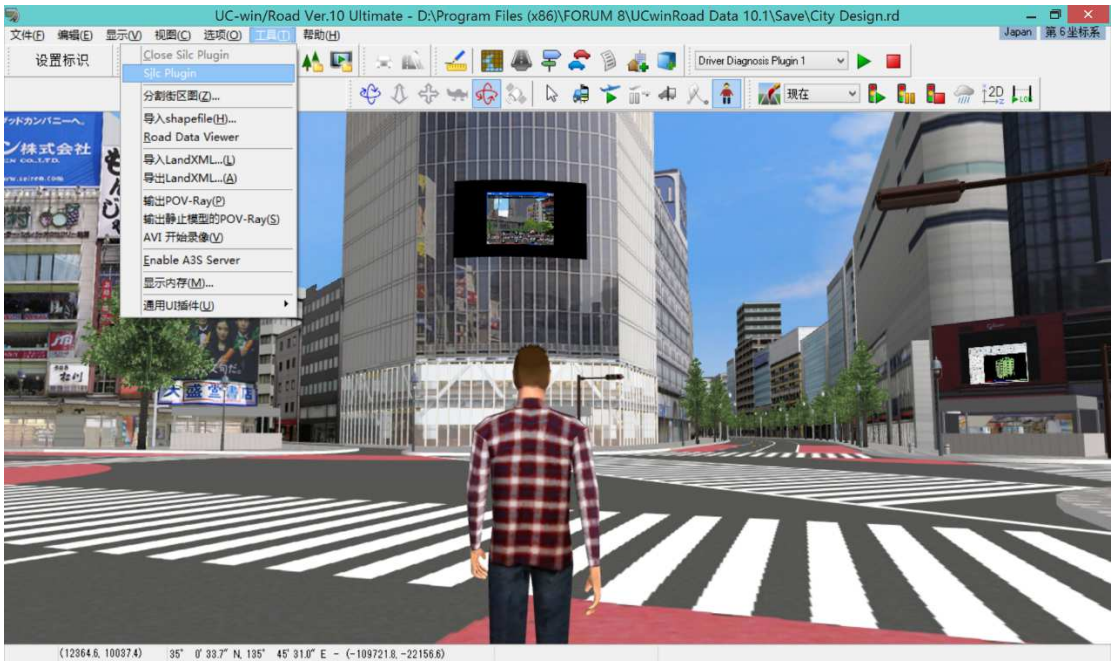
Before running the program, please make sure that you have connected Kinect for Windows V2 device correctly and made proper adjustment of its position. See https://dev.windows.com/en-us/kinect/hardware-setup for more information.

4.2 Load the plugin

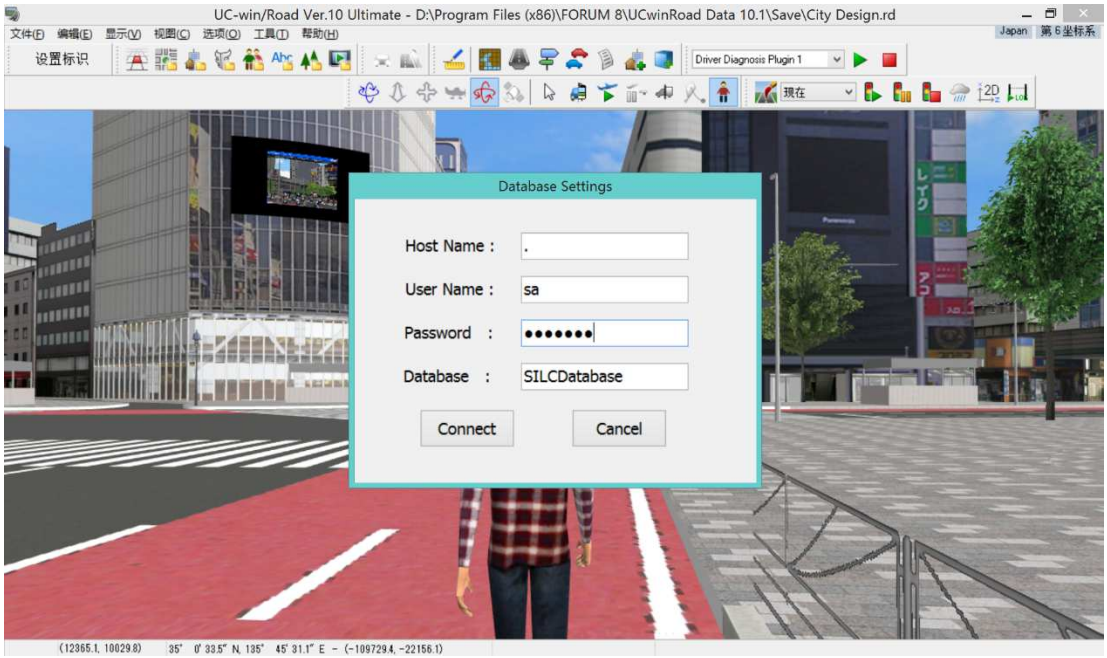
a) Loading plugOpen UC-win/Road application, open the project City Design, change the simulation mode to Walk, adjust the view to be parallel to the ground, like picture below:



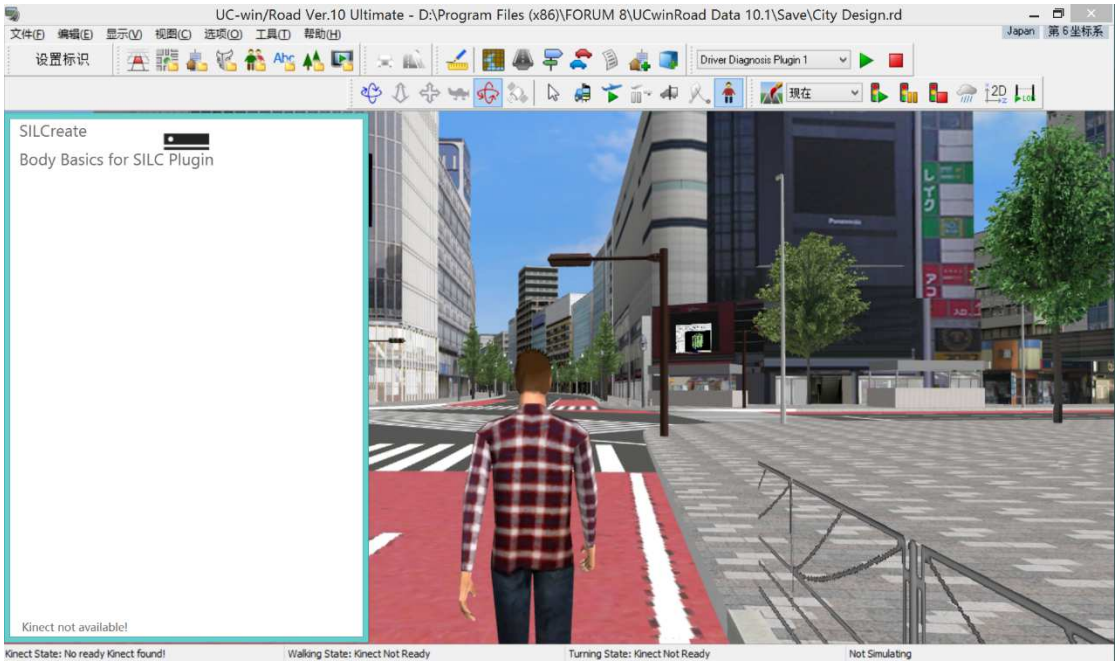
b) Click Tools > SILCPlugin in UC-win/Road menu bar to open the plugin



c) After the Database Setting from show, fill in the host name, user name, password and database name to connect to the database

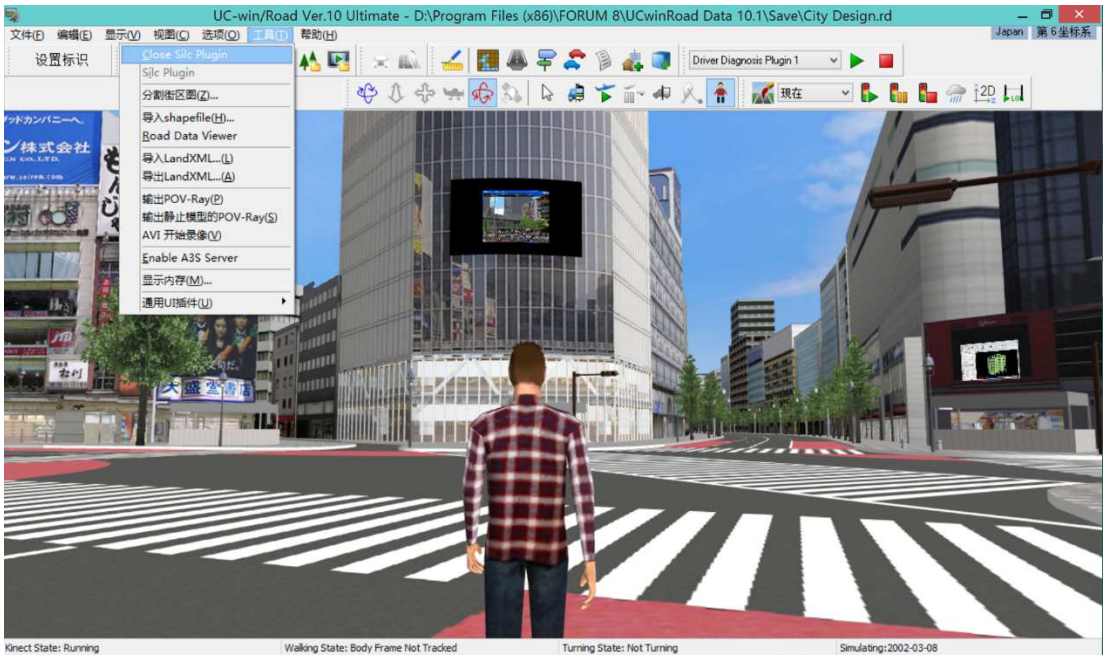


d) After connecting the database, a status bar and a body basics form will show, like picture below



4.3 Close the plugin

Click Tools > Close SILCPlugin to close the plugin.



4.4 Stimulating Walk

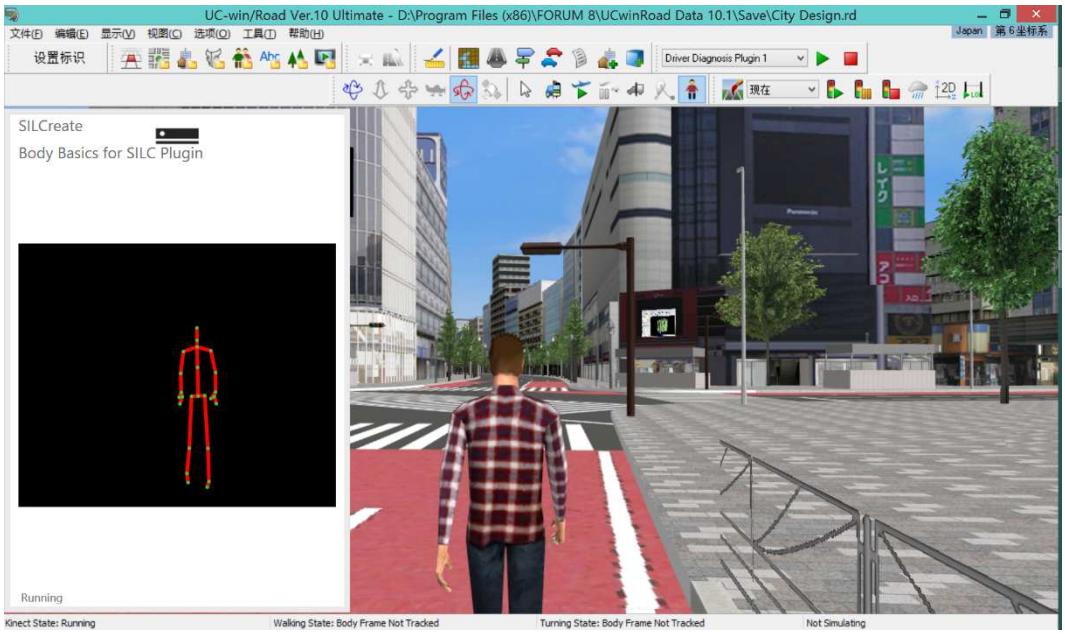
4.4.1 Preparation

Please stand up straight in front of Kinect device and make sure:

a) There is no obstructions in the view of Kinect camera;

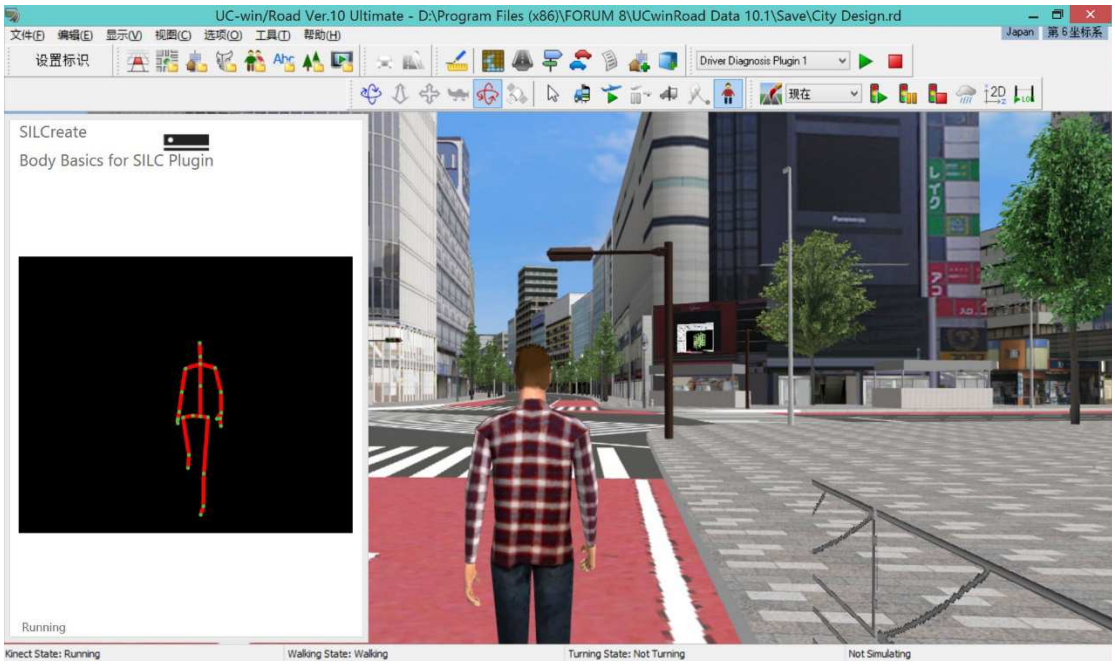
b) There is enough space for you to move.

c) Make sure that your skeleton is showed clearly on the “Body Basics” window, like picture below:



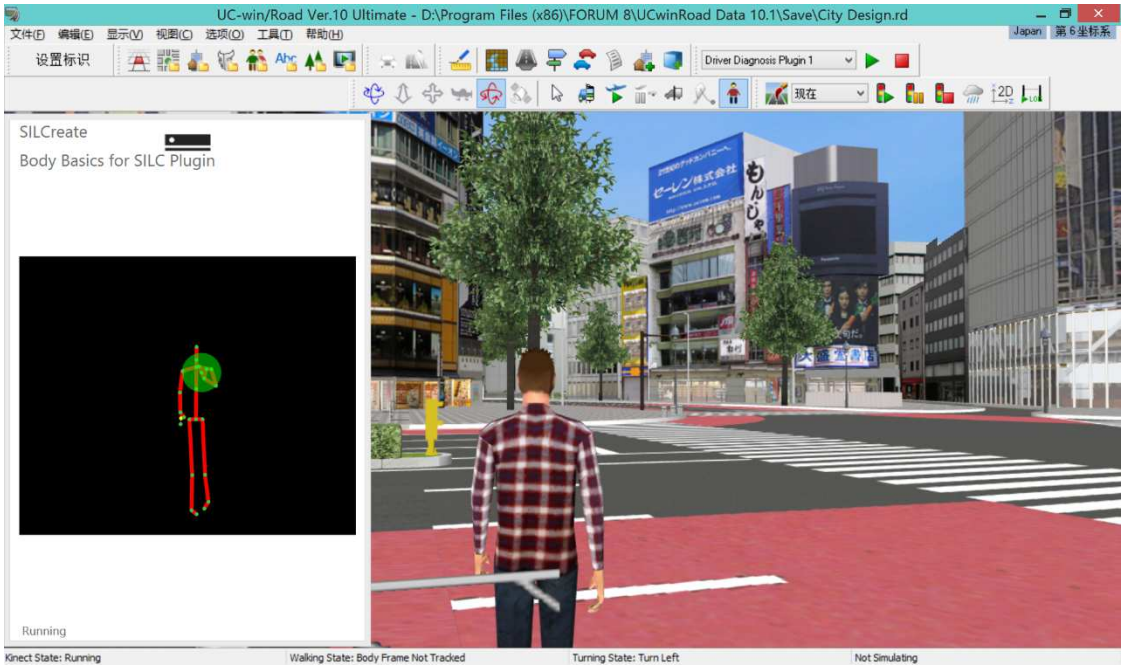
4.4.2 Moving forward

Mark time in front of Kinect camera, the status bar on the bottom of the window will show whether you are walking: Walking/Not walking.



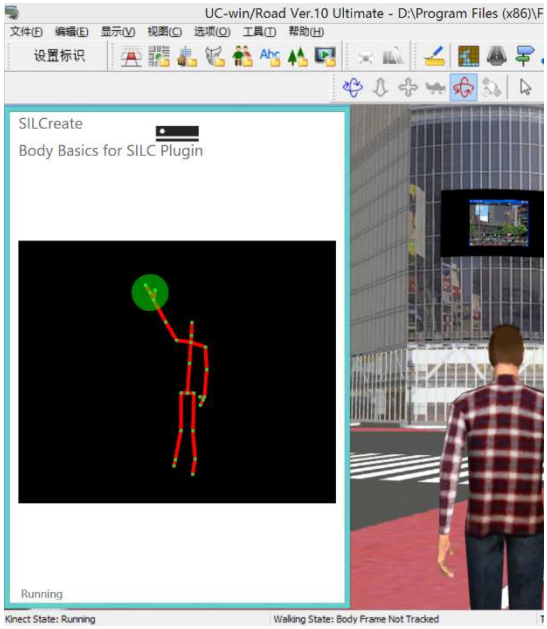
4.4.3 Changing walking direction

Raise your right hand below your head and open your right palm to Kinect camera, now your right hand is green in the body form, then move your hand left or right as you want. You will see the view of UC-win/Road changes correspondingly. The state of your turning will show in the status bar on the bottom: Not turning/Turn left/Turn right.



4.4.4 Open/Close body basics form

Raise your left hand over your head and open your left palm to Kinect camera, now your left hand is green in the body form, the body form which shows your real-time motion information will appear. To close motion window, please repeat the motion above.



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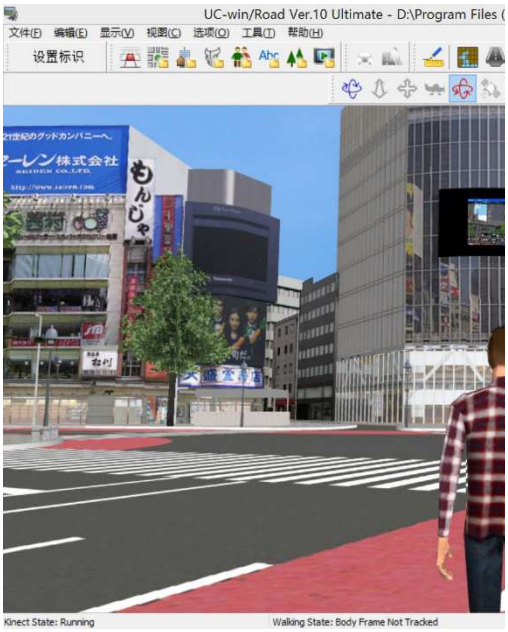


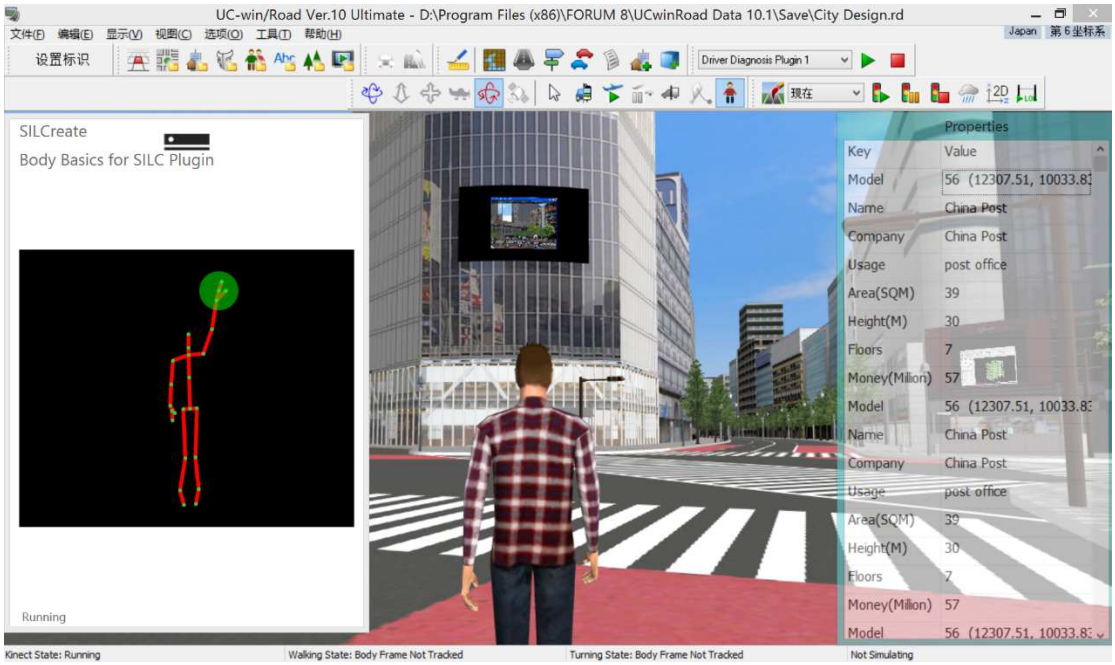
4.4.5 Property information displaying

The property window shows information about the nearest building around you

in UC-win/Road. See details in table below.

Property Name	Meaning
Model	Model name of the building in UC-win/Road
Name	The name of the building
Company	The company of the building
Usage	The usage of the building
Area(SQM)	Building area in m2
Height	Height of the building
Floor	Total floor number of the building
Money(Million)	Total investment expense of the building calculated in million, USD

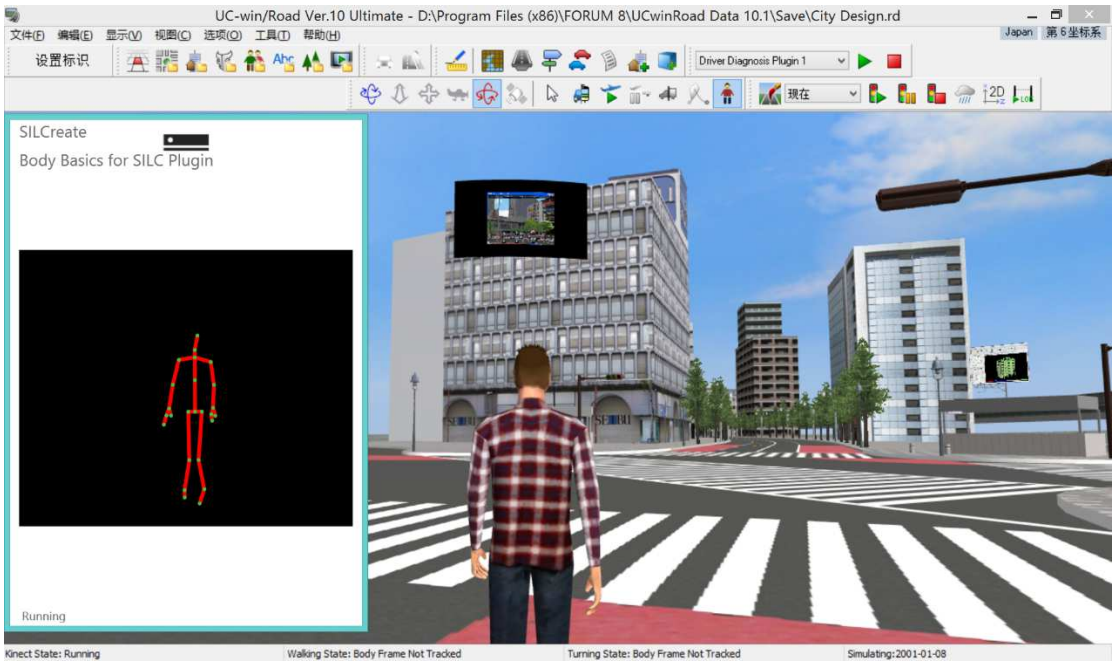
To open Property window, raise your right hand over your head and open your right palm to Kinect camera, the Property window will appear. To close Property window, please repeat the motion above.



4.4.6 Schedule simulation

It simulates the construction sequential order of buildings, so that users can see the course of development of a building or a city.

To start simulation, raise your left hand below your head and open your left palm to Kinect camera, the simulation will start. To stop the simulation, please repeat the motion above, or wait for the end of the simulation.

In the simulation, as time goes by, buildings that not built at that time are not

shown, buildings on construction are flashing, while finished buildings are visible. The simulation states will show in the status bar on the bottom: Not simulating/Simulating: Simulating Time.