2W09_live-gesture-recognition
HOW TO USE

HOW TO BEGIN

Implementing the code is very simple. However sometimes executable files do not run correctly, in which case the code has to be compiled before running. The code uses OpenCV and X11 libraries. Packages associated with these libraries as well as GCC compiler must be installed on the associated machine. The required packages are ***gcc, opencv-doc, libcv2.1, linhighgui2.1, libcvaux2.1, libcv-dev, libcvaux-dev, linhighgui-dev, libx11-dev, and libxtst-dev***. These packages can be collectively installed from the Synaptic Package Manager or using individual system commands:

```
$ sudo apt-get install [package-name]
```

After installing all the packages compile files - ***install.cpp, gesture.cpp, checkgesture.cpp, addgesture.cpp*** and ***delgesture.cpp***. The files can be compiled from the terminal using the command:

```
$ g++ `pkg-config opencv --cflags` [filename].cpp -o [filename] `pkg-config opencv --libs` -lX11 -lXtst
```

Do not delete or rename any of the ***'.bin'*** files or delete, rename or edit any other code files. Once all files are compiled, run the file '***install***' once before beginning.

```
$ ./install
```

This will adjust the frames per second (fps) and other parameters according to the webcam. In case this file is not run, the code will take default setting as 30 frames per second and proceed.

HOW TO RUN

Then to run the program, run the file '***gesture***'. This can also be run in the background, without the window which shows the footage of motion sensing (i.e. the grey and non-grey pixels). If the window opens, you may minimize it and continue.
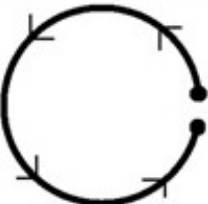
```
$ ./gesture
```

or

```
$ ./gesture backgrnd
```

The file will keep running in the background taking input from the webcam continuously. While making gestures make sure that gestures are quite correct and that
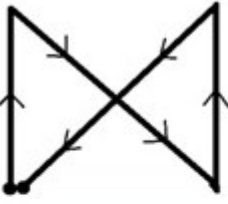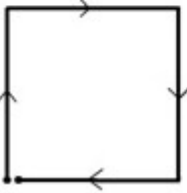
the webcam doesn't move. An arbitrary movement may also be interpreted as one of the gestures and the corresponding action will be performed.

Seven gestures are set as default. These cannot be changed or deleted.

Gesture	Keystroke	Function	Gesture Character
	<Ctrl> + <UP>	Increase volume (VLC)	u
	<Ctrl> + <DOWN>	Decrease volume (VLC)	d
	<DOWN>	Scroll down	r
	<UP>	Scroll up	l
	<Space>	Play/Pause (VLC) / Scroll down page in PDF Document Viewer	o
	-	Open Firefox browser (System command : firefox)	m
	<SUPER>	Dash Home (Ubuntu 11.04 +) / Open Start Menu	s

All the gestures must be done correctly and slowly. You can run older version of the project in which one needs to press **<Space>** before beginning the gesture and after completing it. This and other older version codes and codes for individual parts can be found in the '**old_files**' folder.

There are other gestures which are already set, however these can be deleted or modified by the user. These include three gestures ('x', 'a' and 'v').

Gesture	Keystroke	Function	Gesture Character
	<Ctrl> + Q	Exit an application or process	x
	<Enter>	Open folder / file or start an application	a
	-	Start VLC Media Player (System Command : vlc &)	v

HOW TO MODIFY OR DELETE GESTURES

Already existing gestures and their functions can be checked by running the command:

```
$ ./checkgesture m
Load Successful : scmmd.bin
Gesture : m
Command : firefox
```

New gestures can be added by the command:

```
$ ./add-gesture [gesture-character] [custom command]
```

for example:

```
$ ./addgesture z google-chrome
```

The [gesture-character] must be a single character like 'w' or 'n', i.e. something like 'star' will not do for the [gesture-character]. Also the system command must be a valid system command. Then following the terminal instructions perform the gesture three times. Each time perform the gesture in a similar way and at the same speed.

 If a gesture already exists for the character, it will be overwritten. Some characters have gestures fixed by default like 'u','d', 'l', 'r', 's', 'm', 'o' etc, and cannot be overwritten or deleted.