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 packages required for compiling the code 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 the file - install.cpp using the command:

```
$ g++ install.cpp -o install
```

Running the file install in turn compiles all the other required files, provided the required libraries are installed correctly and up-to-date.

```
$ ./install
```

If the file 'install' runs correctly you don't need to do this Alternatively, you can compile all the files individually using the command:

```
$ g++ `pkg-config opencv --cflags` [filename].cpp -o [filename]
`pkg-config opencv --libs` -lx11 -lxtst
```

The files to be compiled are: ***initialize.cpp, main.cpp, gesture.cpp, addgesture.cpp, checkgesture.cpp*** and ***delgesture.cpp***.

Before beginning run the file initialize:

```
$ ./initialize
```

This will adjust the frames per second (fps) of the webcam and the computer's memory and initialize the standard gestures.
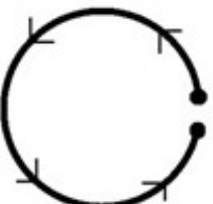
HOW TO RUN

Then to run the program, run the file '***gesture***'. This file runs in the background without any window; the only way to know it is running is to check whether the webcam is on.

```
$ ./gesture
```

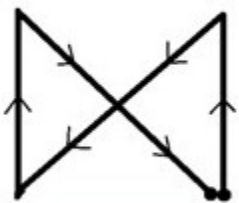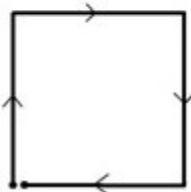The file will keep running in the background taking input from the webcam continuously. While making gestures make sure that gestures are quite correct and that the webcam doesn't move. An arbitrary movement may also be interpreted as one of the gestures and the corresponding action will be performed. All the gestures must be done correctly and slowly. Each gesture must last at least for half a second to be counted as a valid gesture. 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.

Ten gestures are set as default. These cannot be changed or deleted. These include 'u', 'd', 'l', 'r', 's', 'm', 'o', 'a', 'x' and 'v'.

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

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.