

Interactive keyboard using 2 web-cams

Object: To implement the MATLAB program which will allow to type messages using hand gestures via web cam.

Description: The web-cams will be situated as follows: first in front of the person to check the position of the hand on the virtual keyboard, the second from side will record the moment of the clicking the keyboard. The written symbol will be then displayed on the screen. The project is divided to three main parts. Some additional features could be developed during the programming process.

1. Implementation of the front camera:

Displaying the keyboard to the screen

Hand position recognition

Mark the corresponding symbol to hand position

2. Implementation of the side camera:

Hand position recognition

Recording the moment of the clicking the keyboard

3. Synchronizing the two cameras:

Two cameras should have the same time response

The chosen symbol is to be displayed on the screen

Application: Our project will allow user by the means of two camera to interact with the virtual keyboard (or gamepad in case of additional development), which will process the information obtained and transform it to commands on keyboard.

Required Skills: In order to success with our project we will have to be able to do several things. Our project will be mostly dependent on our image and video processing skills. Also some understanding in MATLAB programming will be required.

Further additions: As we progress with our main task we want to add some additional features to make our project more original and fun. We want to adapt our program to SEGA emulator on PC and by using the gestures and visual keyboard (note: we will make it more like a gamepad in this case) play, for example, Mortal Kombat or any other game.