

Abstract

Conservatively, human and computer interaction nowadays still uses mouse, keyboard, and monitor. In this Final Task, writer tries to give an alternative of traditional mouse substitution with video camera (webcam). Camera is used as sensor for tracking hand movement or behaviour. Furthermore, this hand behaviour is translated into mouse action. This system then is named virtual mouse.

Hand tracking is implemented with CamShift algorithm. CamShift algorithm work on search window, iteratively it will find hand region every frame. In every frame iteration, CamShift calculates new search window size that will be used as input search window in the next frame. Consequence, CamShift only calculates image in search window and neglects other object movements or appearances on outer existing search window. Therefore, CamShift algorithm is very good for single object detection as this hand tracking.

Skin color distribution that used is hue in HSV (Hue, Saturation, Value) color space. This hue distribution is robust to differences of human skin color and background brightness. Because of the calculation only in the search window, every frame processing time and computation resources usage become small.

Keywords: search window, hue distribution