SIGN LANGUAGE RECOGNITION

ABSTRACT:

- The Sign Language is a method of communication for deaf and dumb people. This project proposes a method that provides a basis development of Sign Language Recognition system for the Indian languages. There are sets of sign Images, each representing binary “up” and “down” positions of the five fingers. The method has been developed with respect to single user both in training and testing phase. The static images have been pre-processed using feature point extraction method. The images are converted into text by identifying the fingertip position of static images using image processing techniques.
- As sign language is well structured code gesture, each gesture has a meaning assigned to it. It can be used to express complex meanings by combining basic elements. In the last several years there has been an increased interest among the researchers in the field of sign language recognition to introduce means of interaction from human – human to human – computer interaction.

Methodology:

- Using OpenCv, Python 3.7 (PyCharm)
- In the proposed method, combinations of binary number sign are developed by using right hand palm image, which are loaded at runtime. An image captured at run time is scanned to identify fingertip positions of the five fingers namely little fingers, ring finger, middle, index finger and thumb finger.
- The edge images are further taken through scan process and detection phase. The procedure of scan process includes marking of feature points, determination of heights of fingers in ‘UP’ position ,determination of angle between the line joining the feature point of ‘UP’ fingers with the reference point and the horizontal line passing through the reference point and determination number of instances ‘d’ which is used to limit number of searches among the signs is considered.

PROPOSED WORK:-

- Implementation
- Acquire the image
- Acquiring frame in real time
  - Cap = cv2.VideoCapture(0)
  - Ret, img = cap.read()
- Image Preprocessing
- Transformation
- Blurring
- Threshold

Fig 1. Acquiring the images in real time

Figure 2: Acquiring frames in real time.

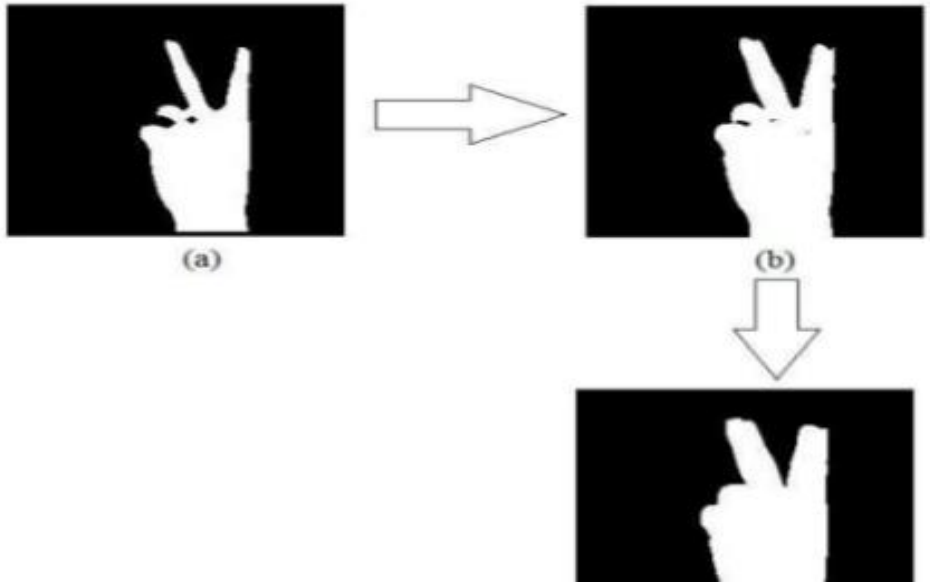


Fig 2. Converting the image

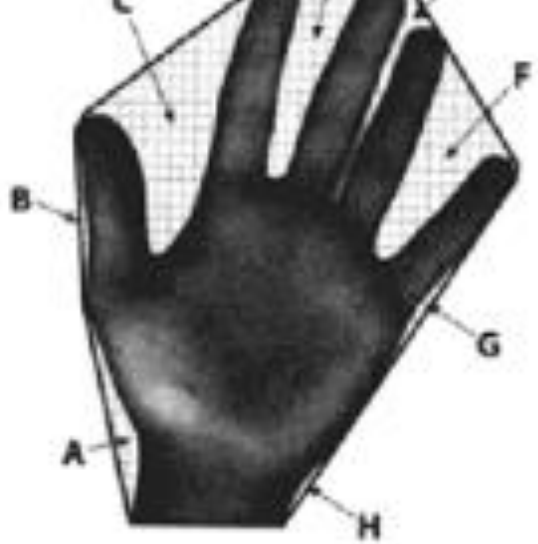


Fig 3. Convex hull of the contour of the hand and convex defect

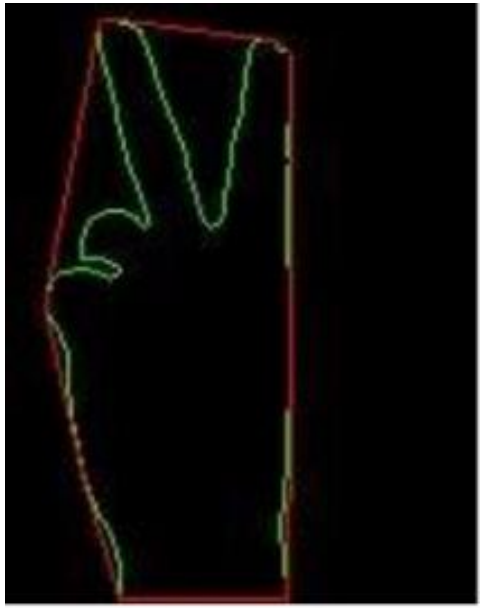


Fig 6. Extract the largest Contour

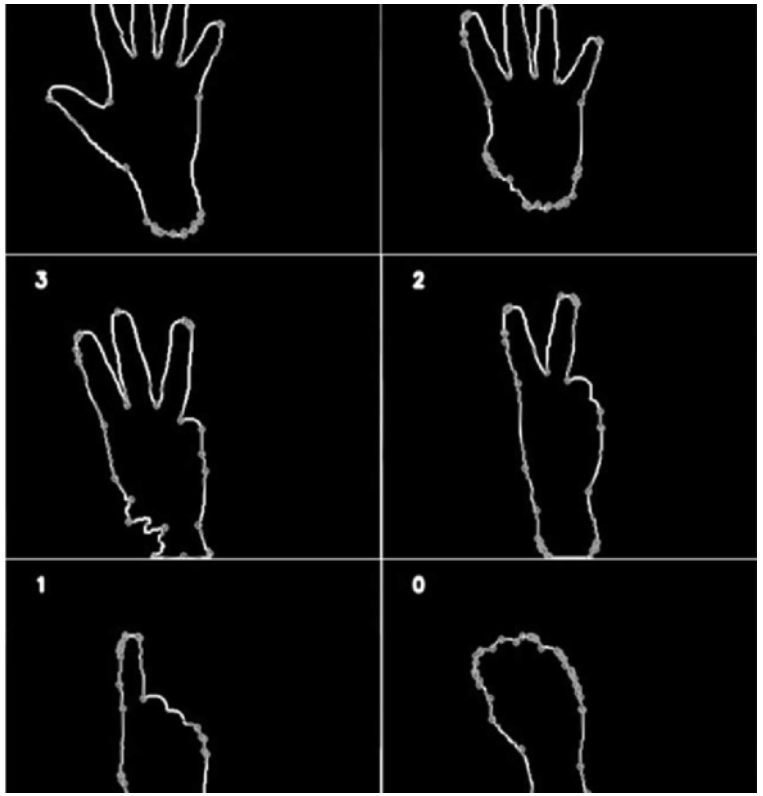
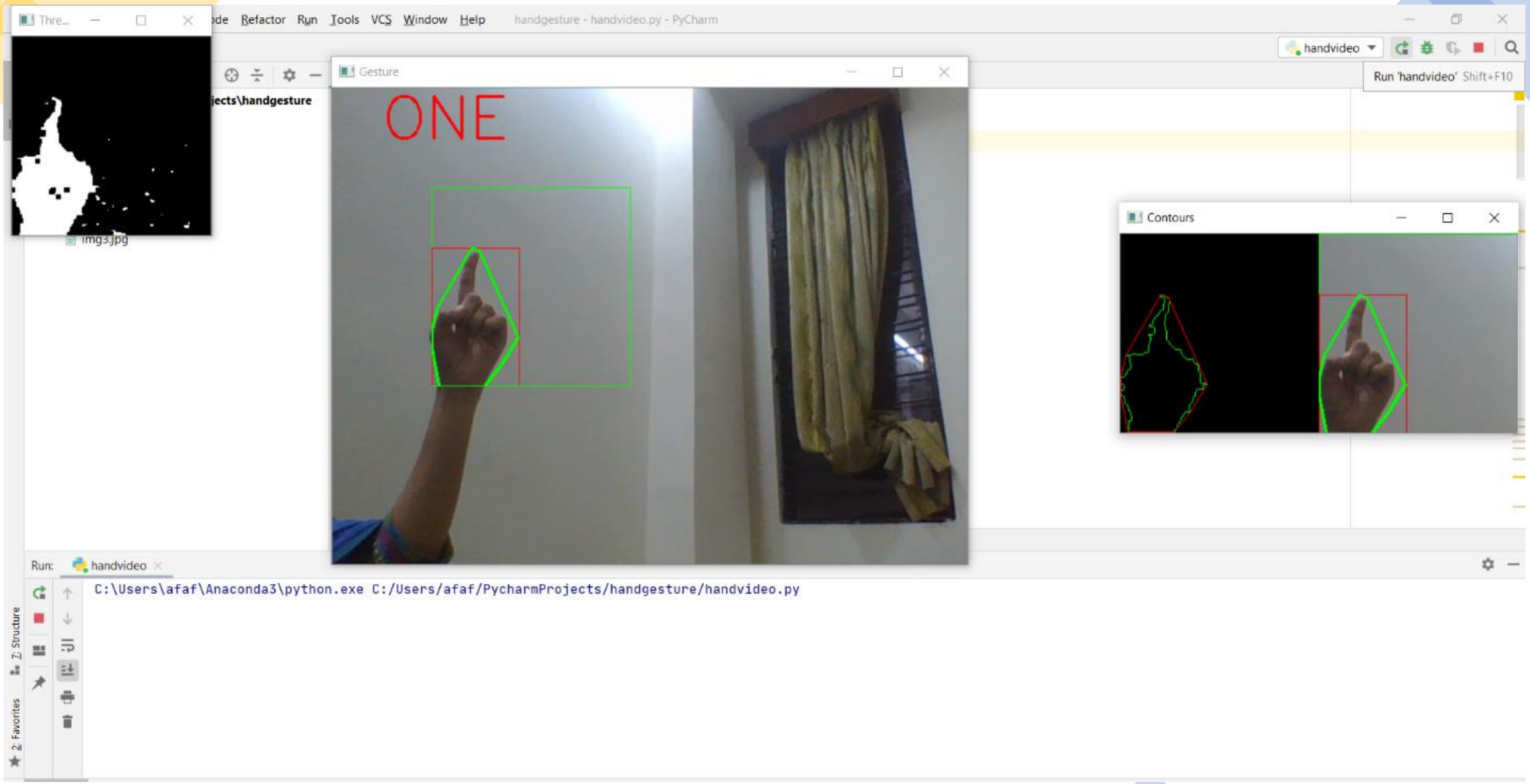


Fig 7. Contour Shape matching with exact matched Sign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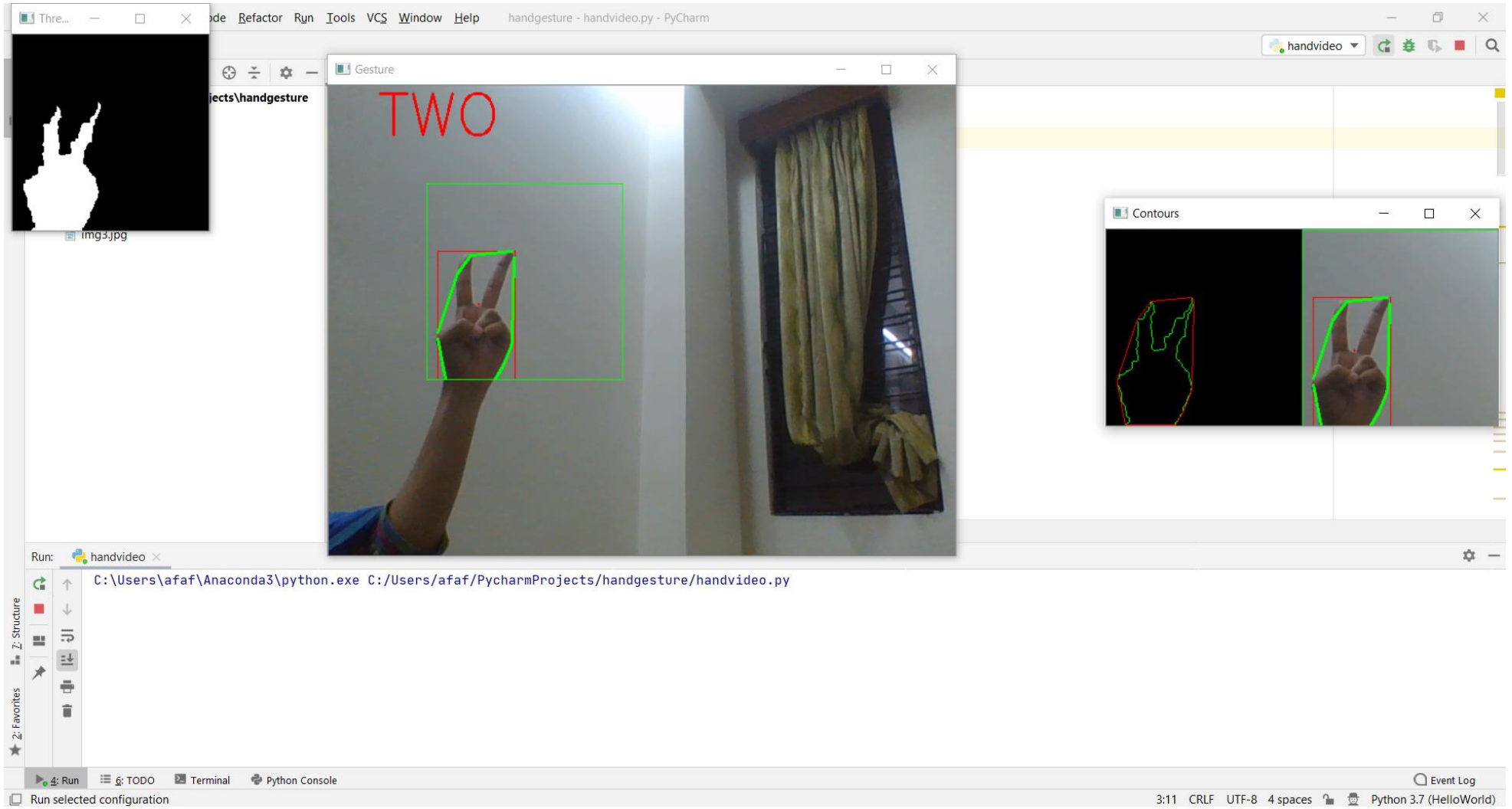
7: Structure
2: Favorites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4: Run
6: TODO
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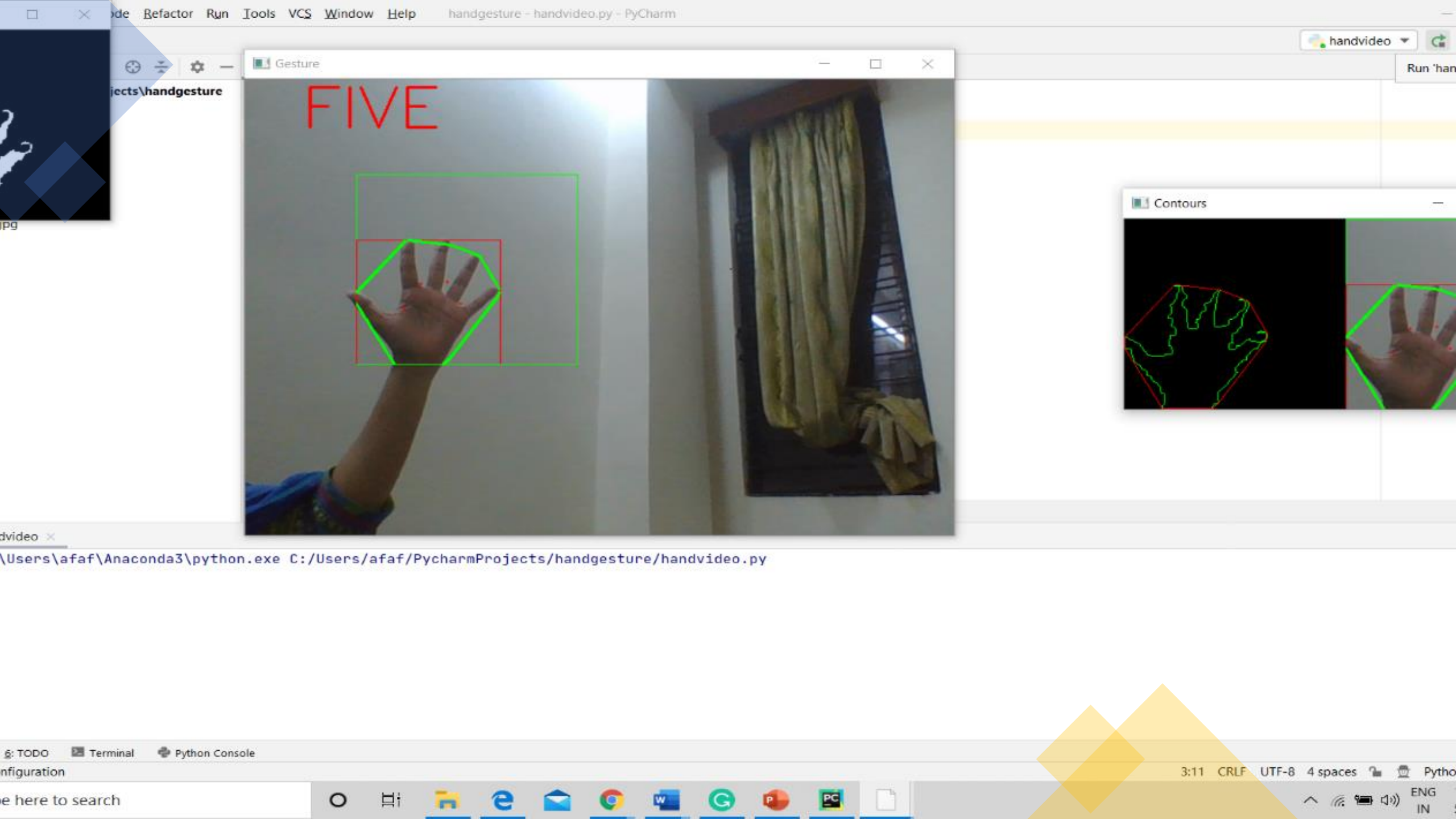
Python 3.7 (HelloWorld)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