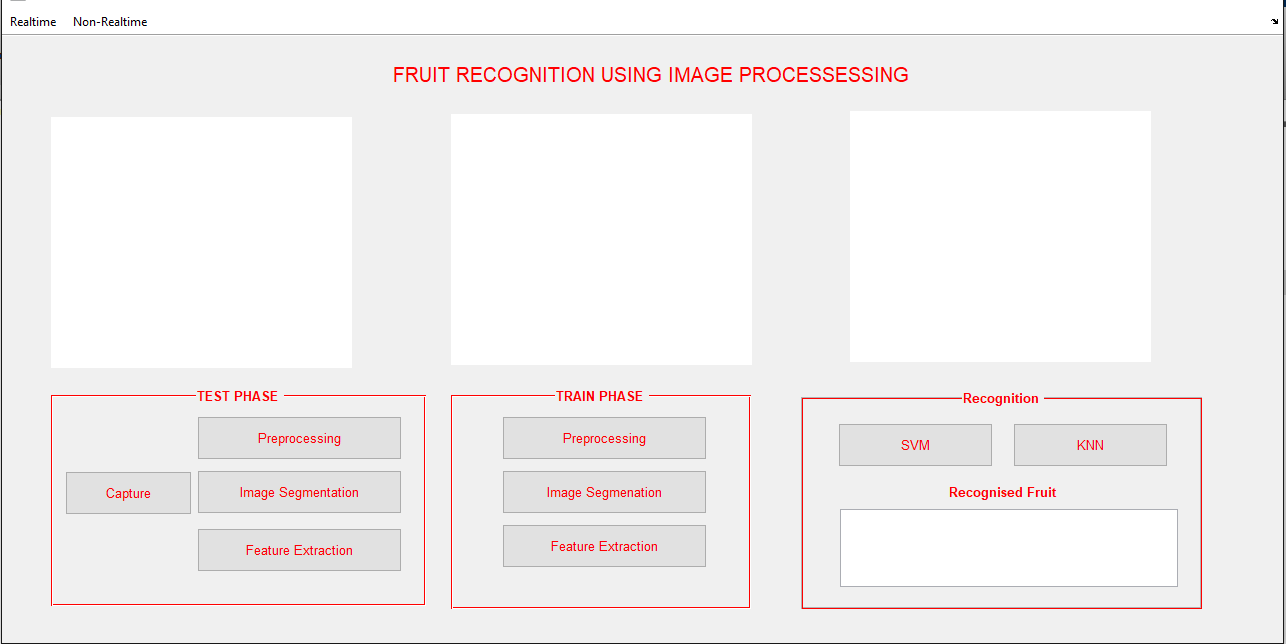
**CHAPTER 8**

**SCREENSHOTS**

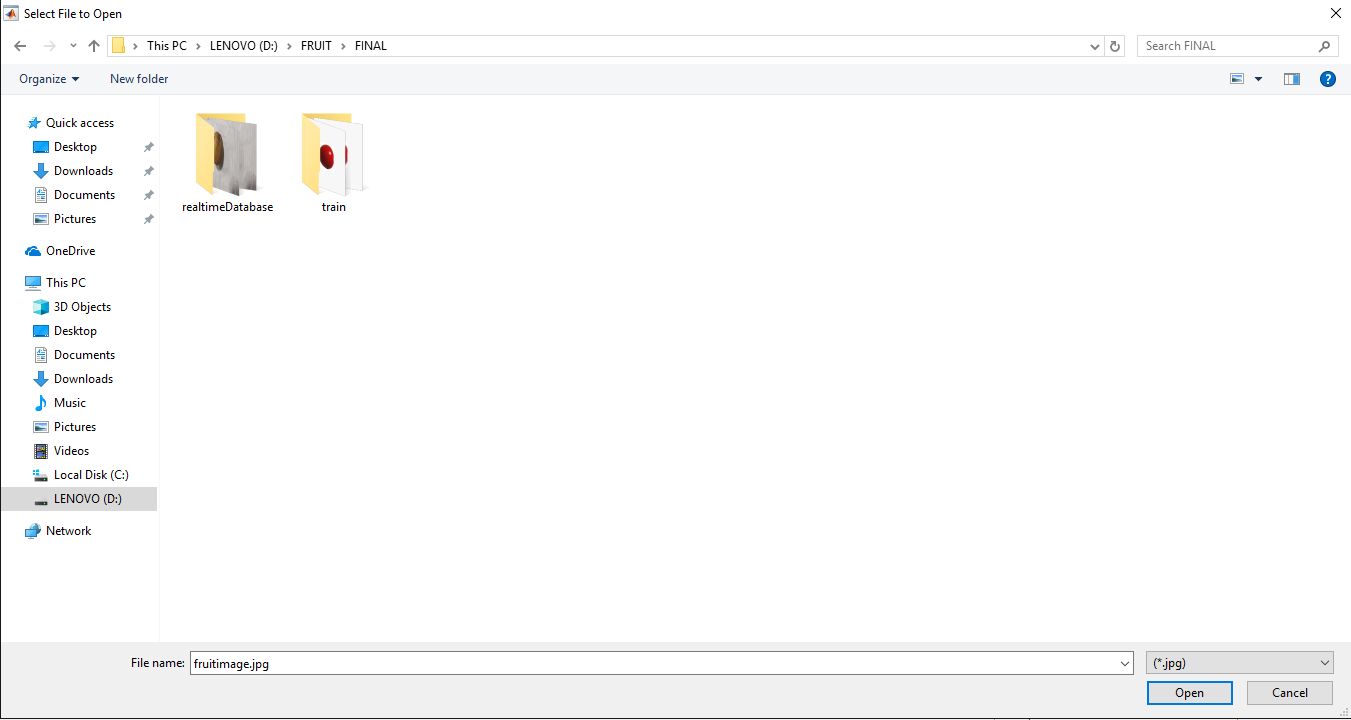
**8.1 Home Page**

The Figure 8.1 shows the homepage of the application. User need to select the image. It contains some information about the application such as pre-processing of image, segmenting the loaded image, type of fruit detected using SVM and KNN method.



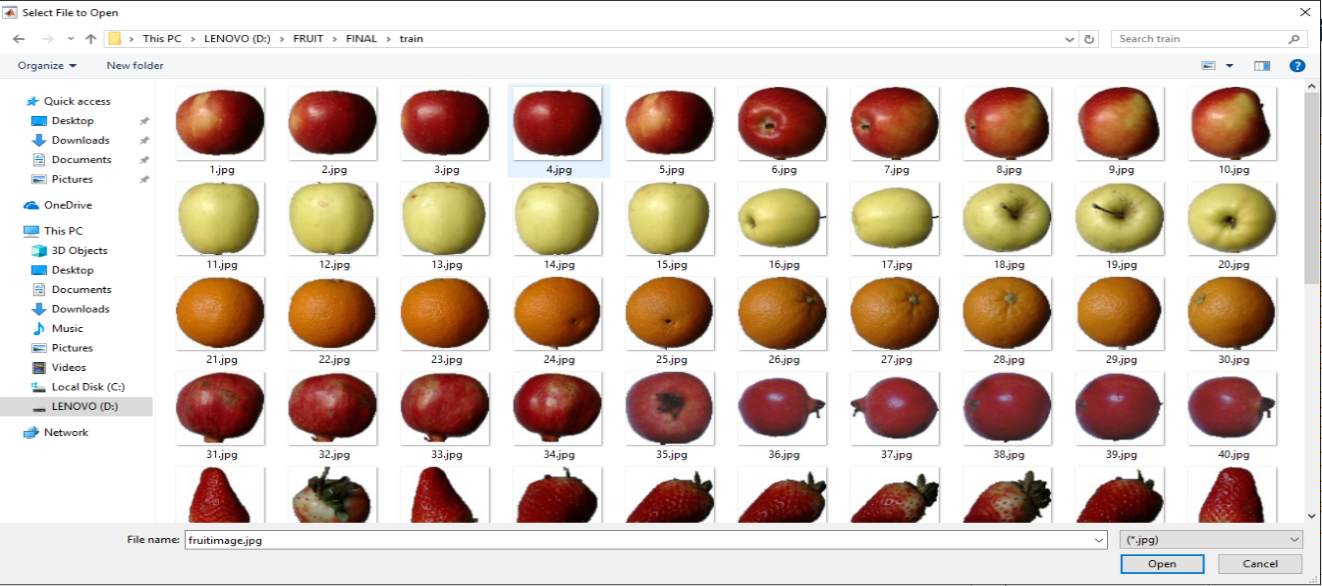
***Figure 8.1:*** *Home Page*

**8.2 Image Selection**

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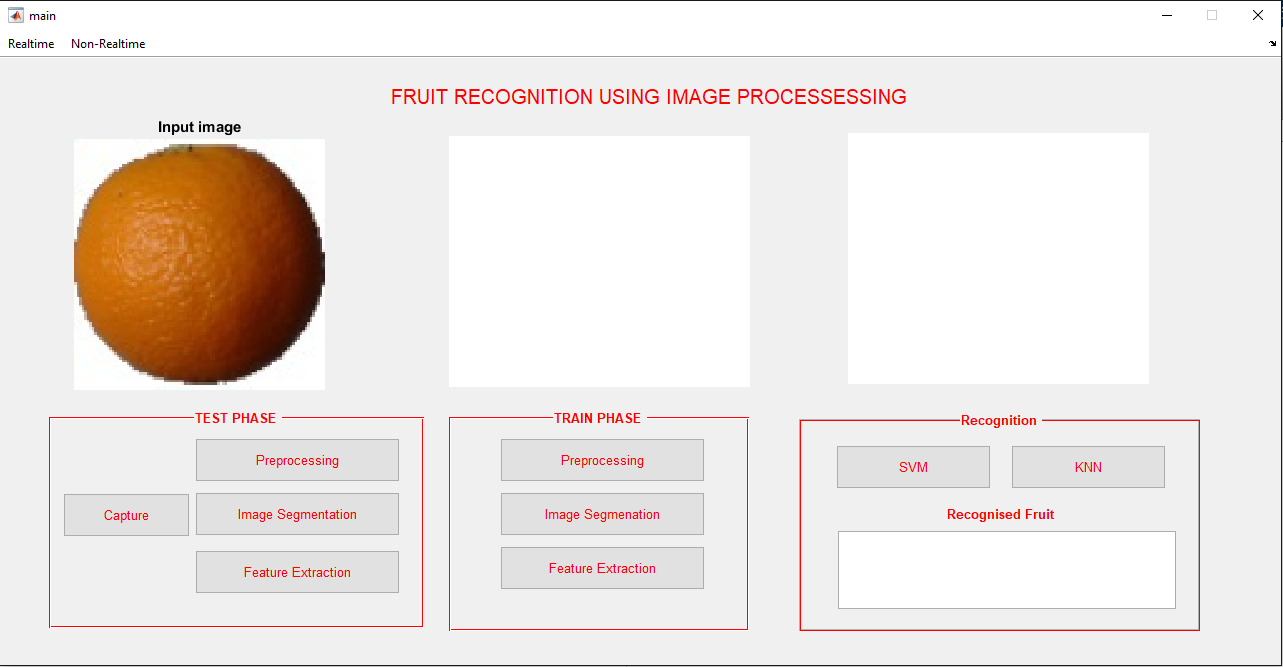
***Figure 8.2:*** *Folder containing Image*

The Figure 8.2 shows the first step in selecting an image. When the user clicks Browse Image option, the folder containing the fruit images will be opened. The folder named TRAIN contains various fruit images that are to be detected by the application in the system. The user can also press the Cancel button if the loading of the image is not needed

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***Figure 8.3:*** *Selection of Image*

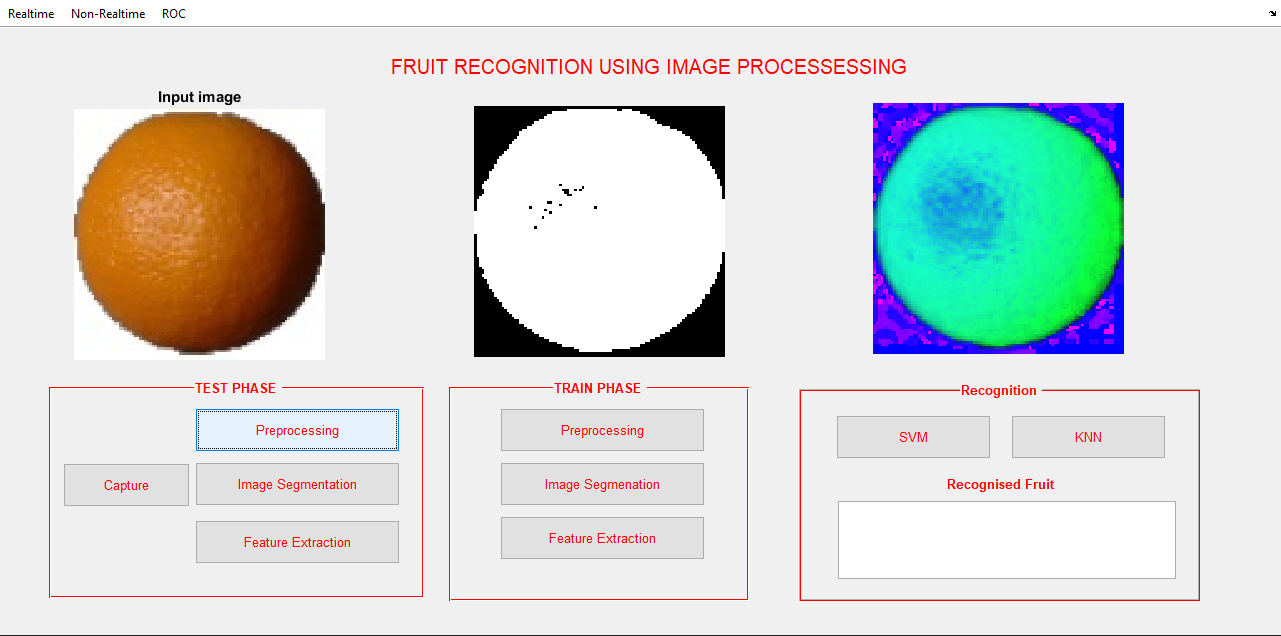
Figure 8.3 shows the collection of different fruit images. Here the user will select a particular image for the detection. The folder contains the images that are to be tested. The selected image will be displayed in the box provided in the homepage. The selected image can be used for predicting the further result.

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***Figure 8.4:*** *Loading of Image*

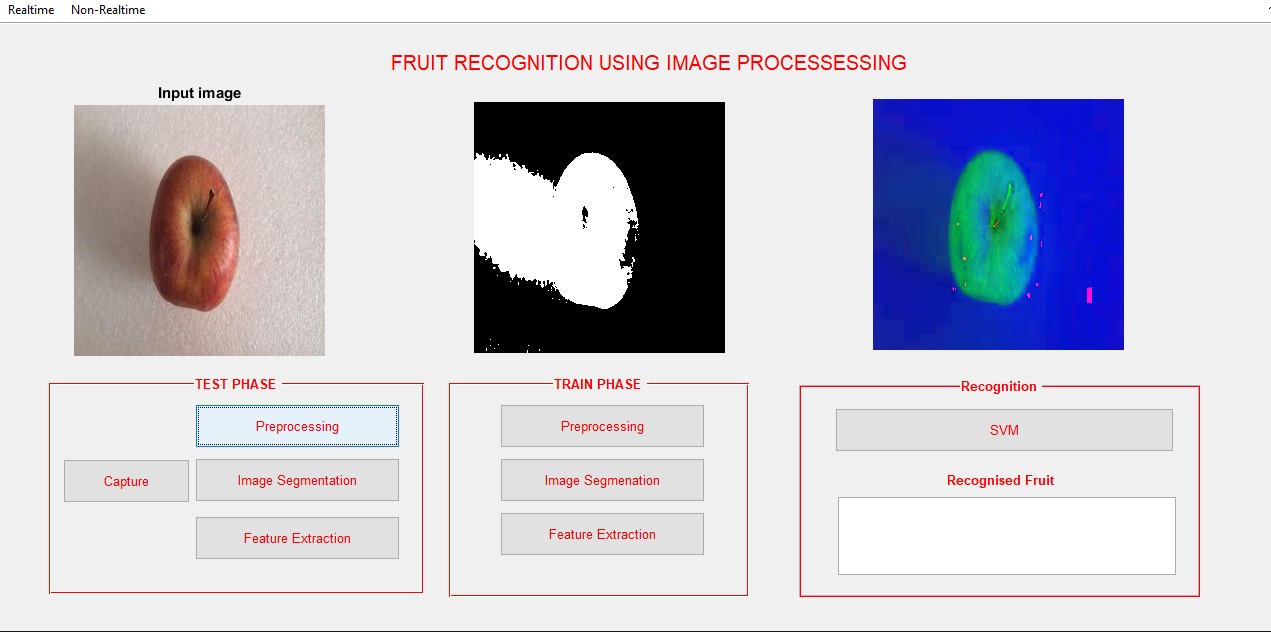
Figure 8.4 shows the image being loaded of interest. The image will be loaded when the user clicks on the Browse Image option. The image contains the fruit which needs to be tested and classified will be loaded here. The selected image will be displayed in the box provided in the homepage.

**8.3 Pre-processing of Image**



***Figure 8.5:*** *Pre-processing of Fruit Image in Non-Realtime*

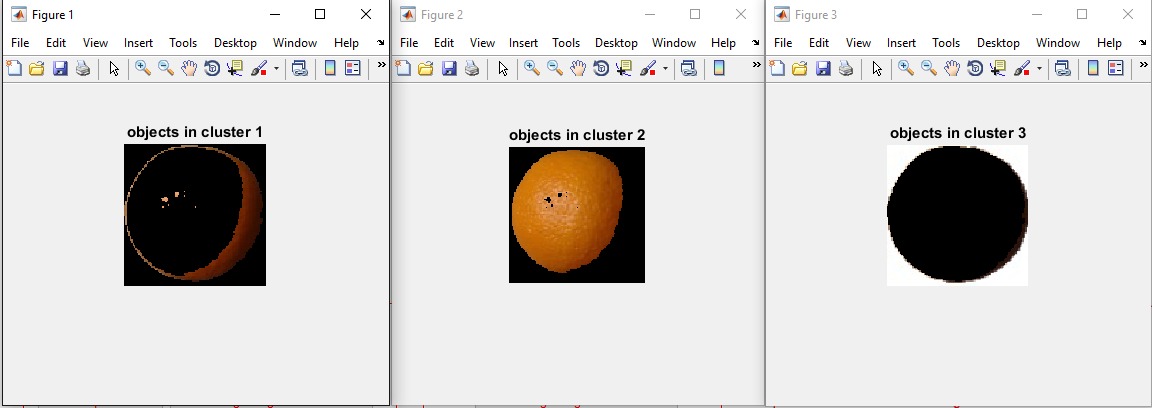
Figure 8.5 shows the images that being pre-processed. The image will be first converted from RGB to GRAY. This image will be converted to gray threshold. This gray threshold image gets converted to black and white which is displayed in axes 2. The loaded image gets converted from RGB to HSV which is displayed in axes 3.

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***Figure 8.6:*** *Pre-processing of Fruit Image in Realtime*

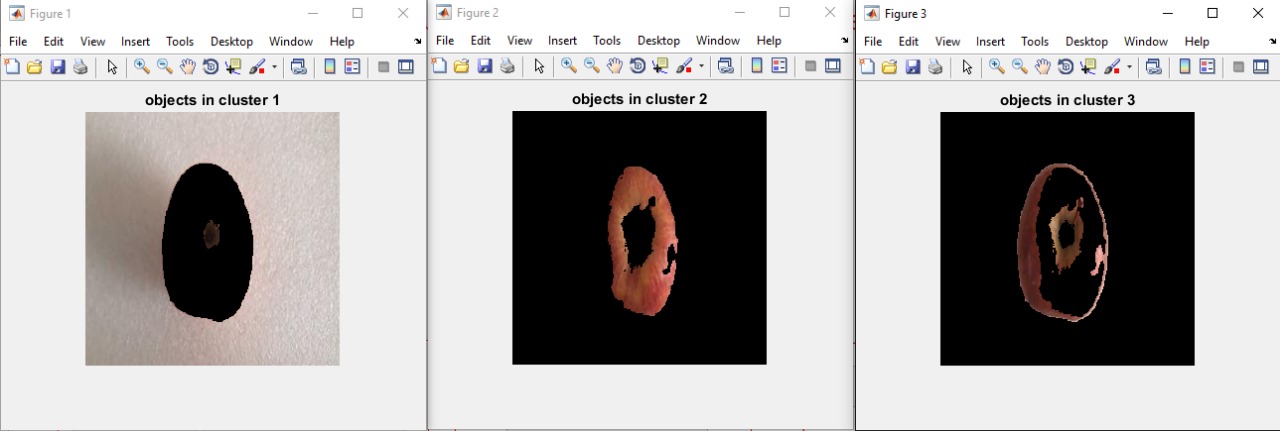
Figure 8.6 shows the images that being pre-processed. The image will be first converted from RGB to GRAY. This image will be converted to gray threshold. This gray threshold image gets converted to black and white which is displayed in axes 2. The loaded image gets converted from RGB to HSV which is displayed in axes 3.

**8.4 Segmentation of Image**



***Figure 8.7:*** *Segmentation of Fruit Image in Non-Realtime*

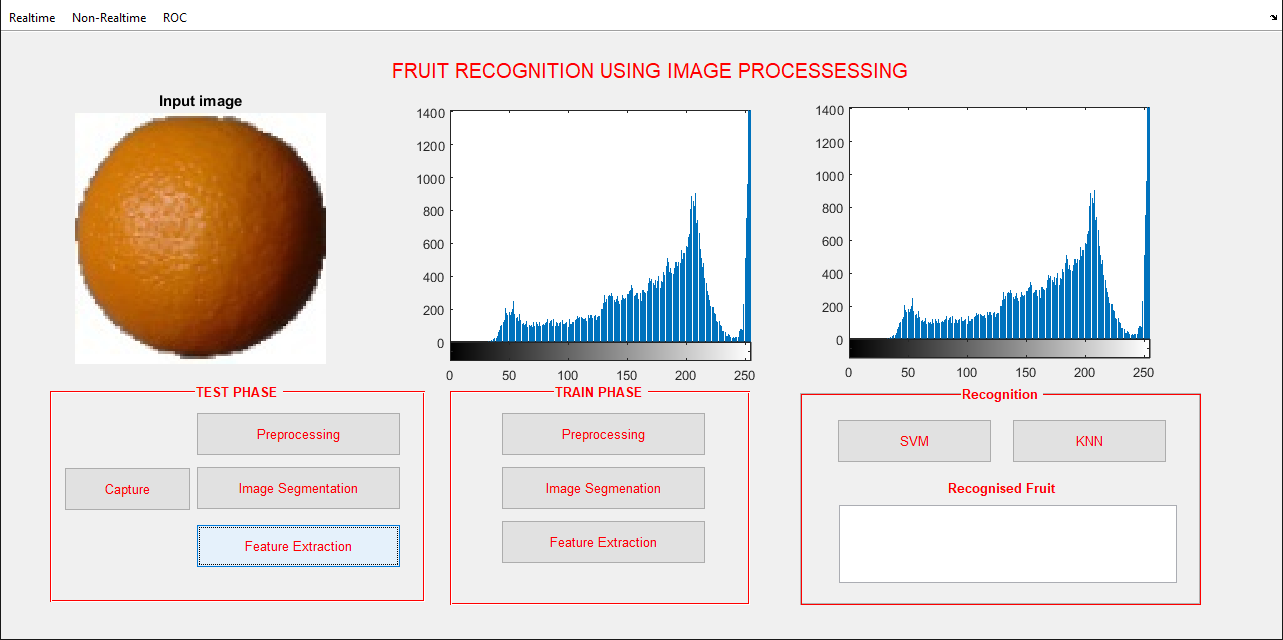
The Figure 8.7 shows the segments of the loaded image. After the user loads the image, the user needs to click on Segmentation Image button to get the segments of the image. The segmentation image will be in three different clusters which uses the K-mean algorithm.



***Figure 8.8:*** *Segmentation of Fruit Image in Realtime*

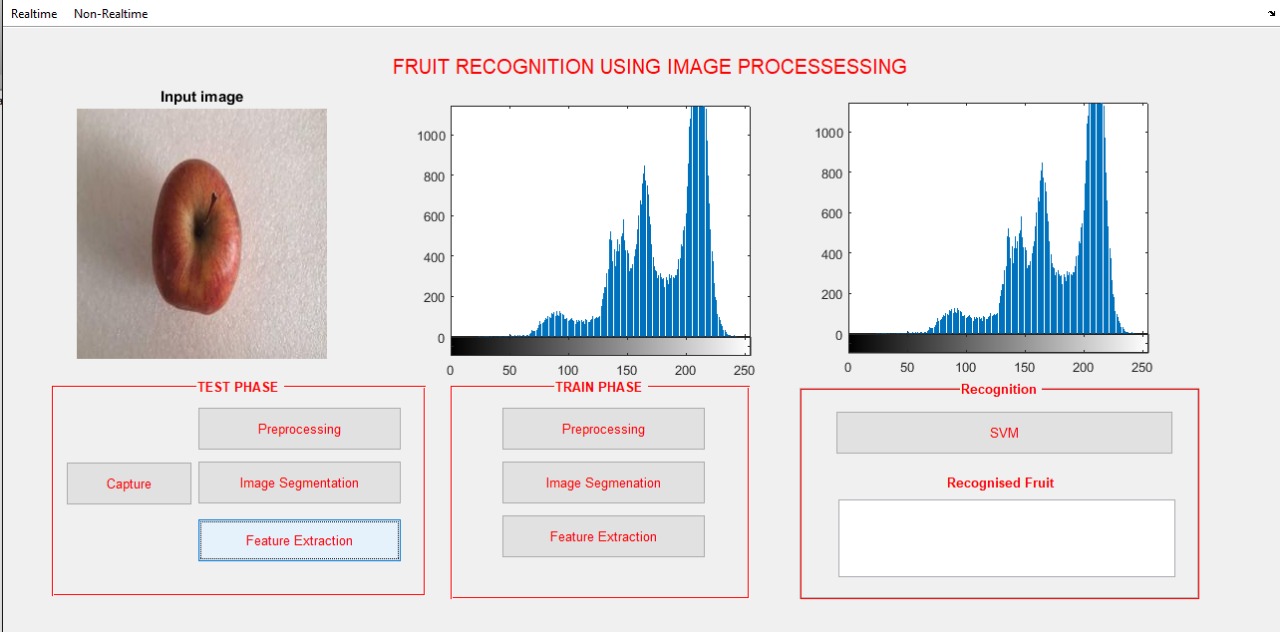
The Figure 8.8 shows the segments of the loaded image. After the user loads the image. The segmentation image will be in three different clusters which uses the K-mean algorithm.

**8.5 Feature Extraction of Image**



***Figure 8.9:*** *Feature Extraction of Fruit Image in Non-Realtime*

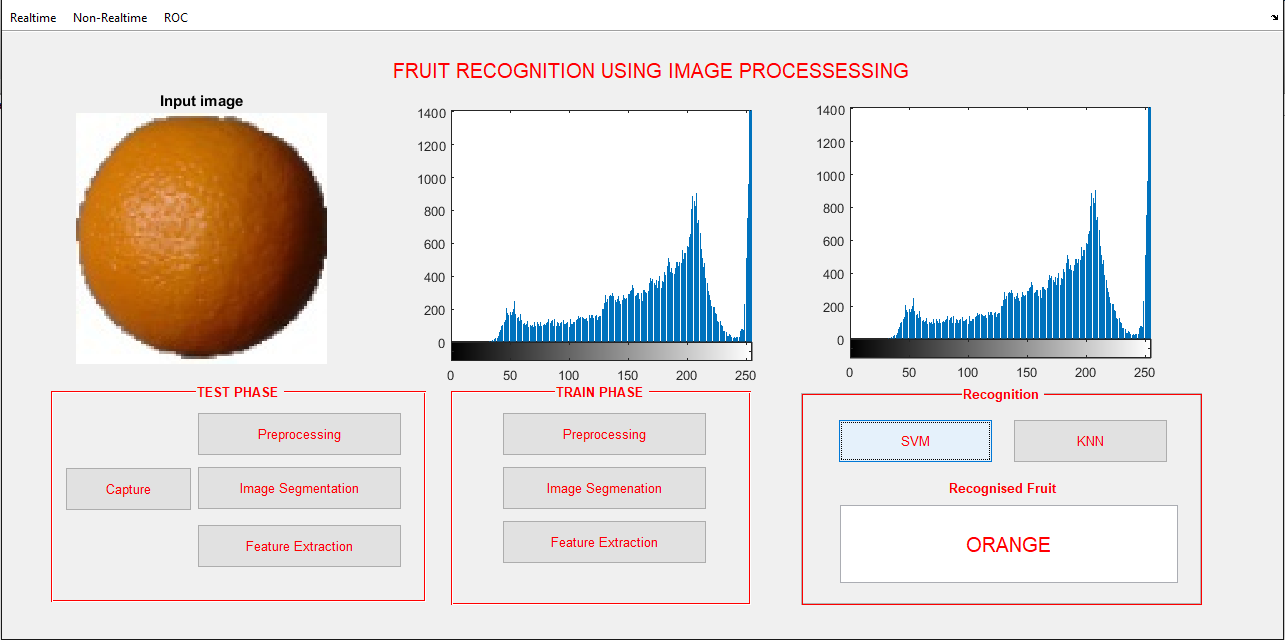
The Figure 8.9 shows the process of feature extraction. In this the features of the loaded image extracted. The graph displays the color moments of red and blue. Various other features for shape, color and texture is processed.



***Figure 8.10:*** *Feature Extraction of Fruit Image in Realtime*

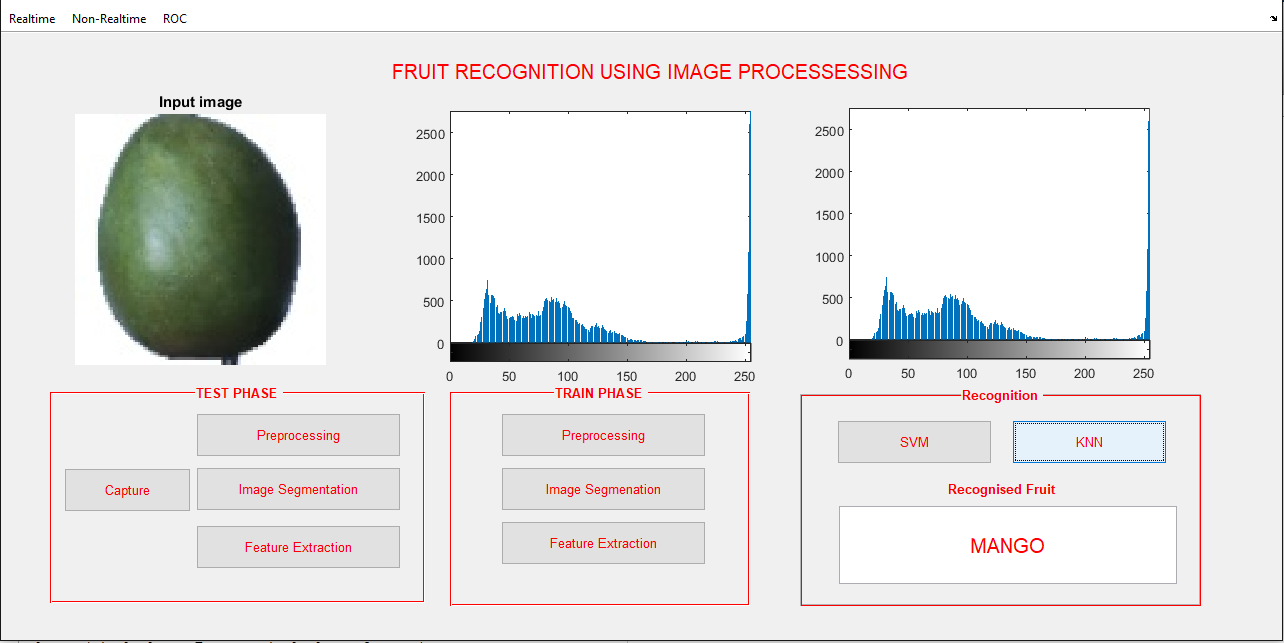
The Figure 8.10 shows the process of feature extraction. In this the features of the loaded image extracted. The graph displays the color moments of red and blue. Various other features for shape, color and texture is processed.

**8.6 Result of Fruit**

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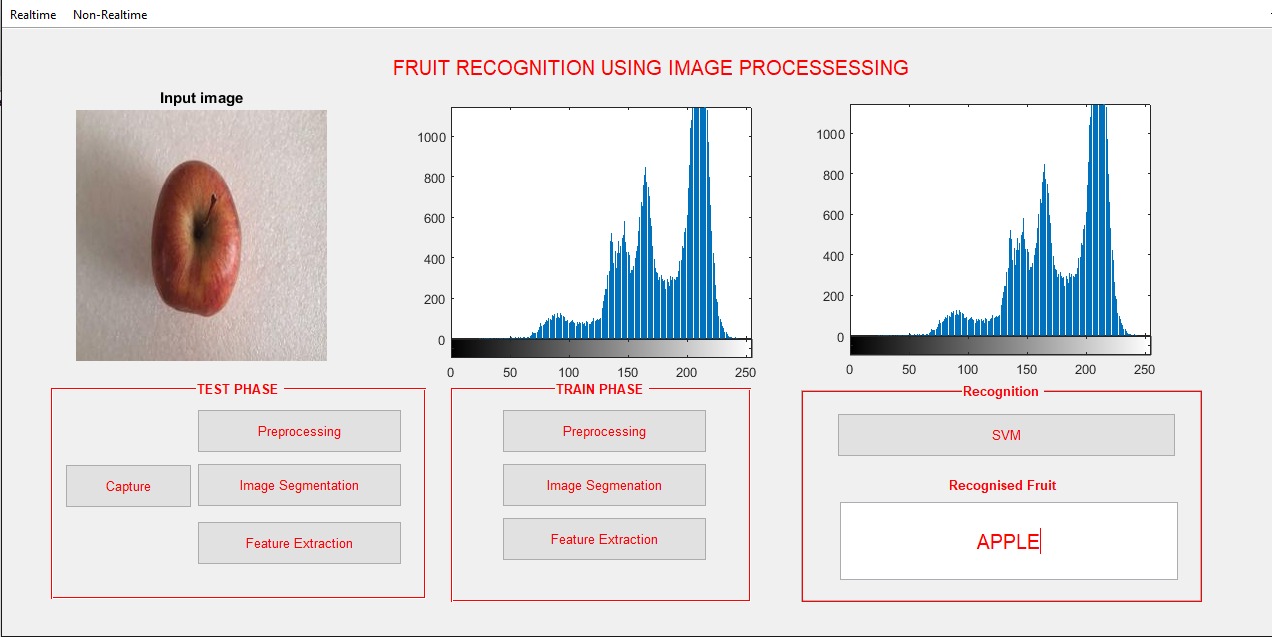
***Figure 8.11:*** *Result Page of Fruit using SVM in Non-Realtime*

The Figure 8.11 shows Recognition of fruit. This process uses SVM method for recognizing fruit. After identifying desired fruit, the result will be displayed.

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***Figure 8.12:*** *Result Page of Fruit using KNN in Non-Realtime*

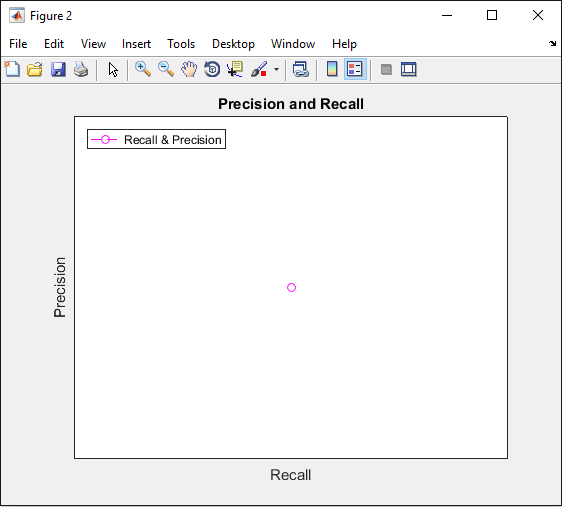
The Figure 8.12 shows Recognition of fruit. This process uses KNN method for recognizing fruit. After identifying desired fruit, the result will be displayed.

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***Figure 8.13:*** *Result Page of Fruit using SVM in Realtime*

The Figure 8.13 shows Recognition of fruit. This process uses SVM and KNN method for recognizing fruit. After identifying desired fruit, the result will be displayed.

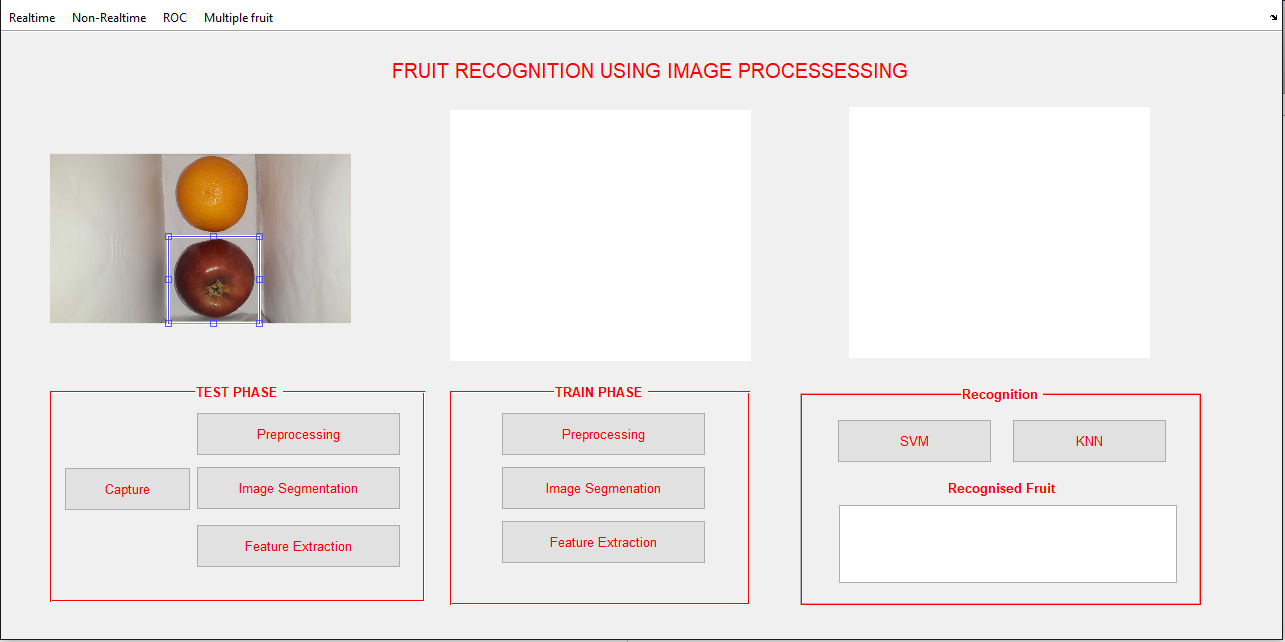
**8.7 Result in ROC Graph**



***Figure 8.14:*** *Result of ROC graph*

The Figure 8.14 shows result of fruit in ROC graph. The graph is compared with Precision and Recall in Realtime Technique. It will check the accuracy using SVM algorithm by plotting the graph. The above figure 8.14 has 100percent accuracy which is represented in a red color circle.

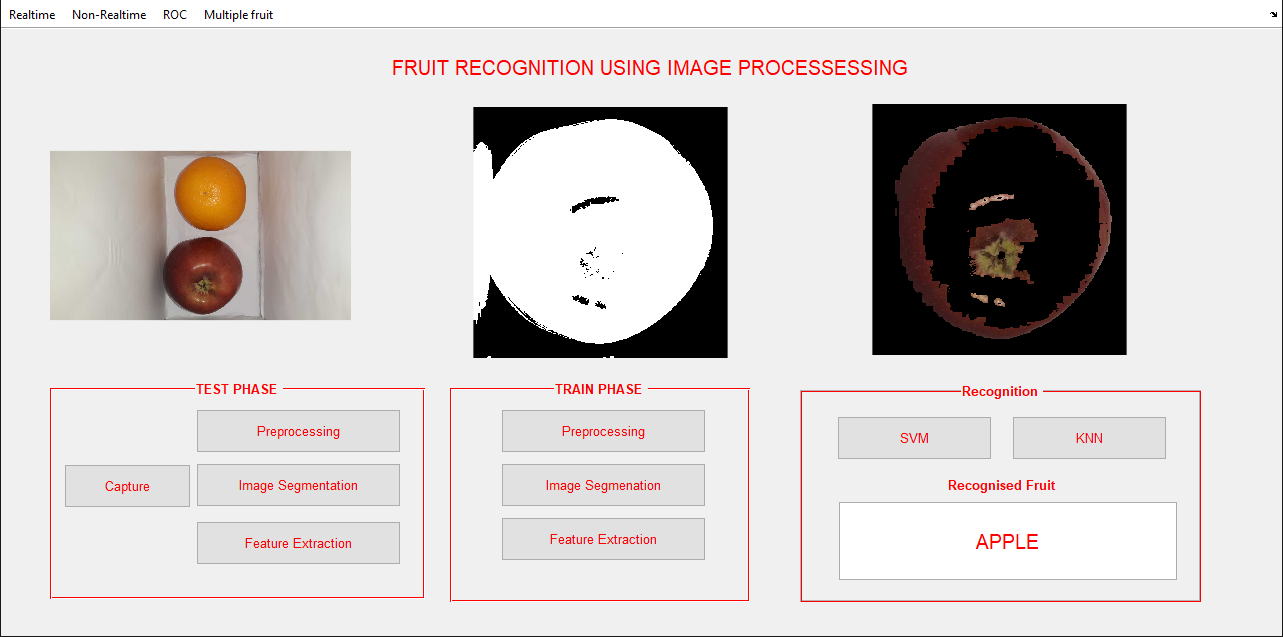
**8.8 Cropped Image of a Fruit**

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***Figure 8.15:*** *Cropped Image of the Multi-Fruit*

The Figure 8.15 shows the multi-fruits. The fruits are cropped using the cropping function.

**8.9 Result of multi-fruit in Realtime**

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***Figure 8.16:*** *Result of Multi-Fruit in Realtime*

The Figure 8.16 shows the result of multi-fruit. Here two different fruit is taken. From the captured image one fruit image is cropped out. After cropping the desired fruit image, the pre-processing, segmentation and feature extraction will be performed. Later the recognition is done by using SVM algorithm. The desired cropped fruit name is obtained as output.