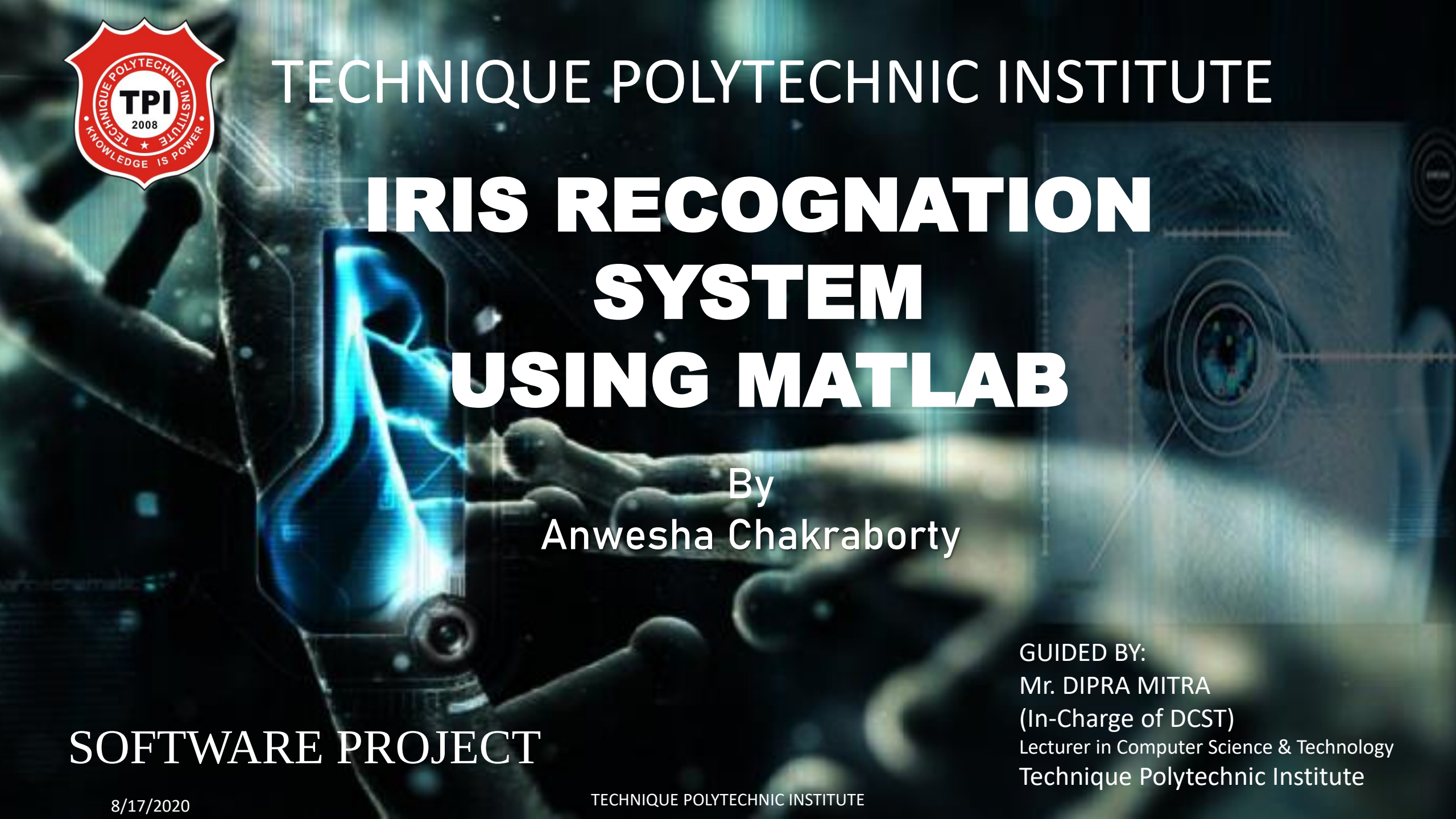
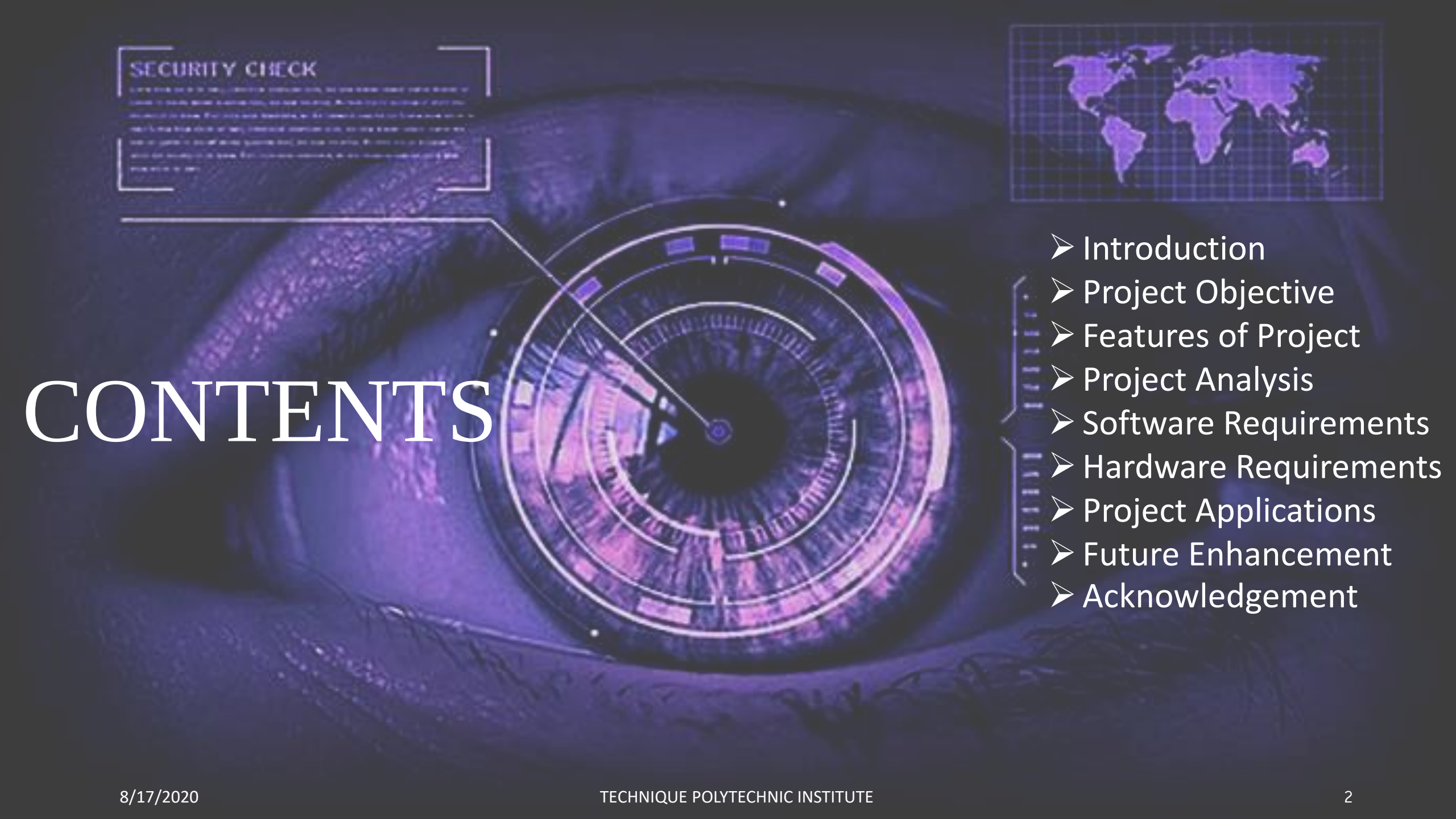

TECHNIQUE POLYTECHNIC INSTITUTE
IRIS RECOGNATION SYSTEM USING MATLAB
By
Anwesha Chakraborty
GUIDED BY:
Mr. DIPRA MITRA
(In-Charge of DCST)
Lecturer in Computer Science & Technology
Technique Polytechnic Institute
SOFTWARE PROJECT



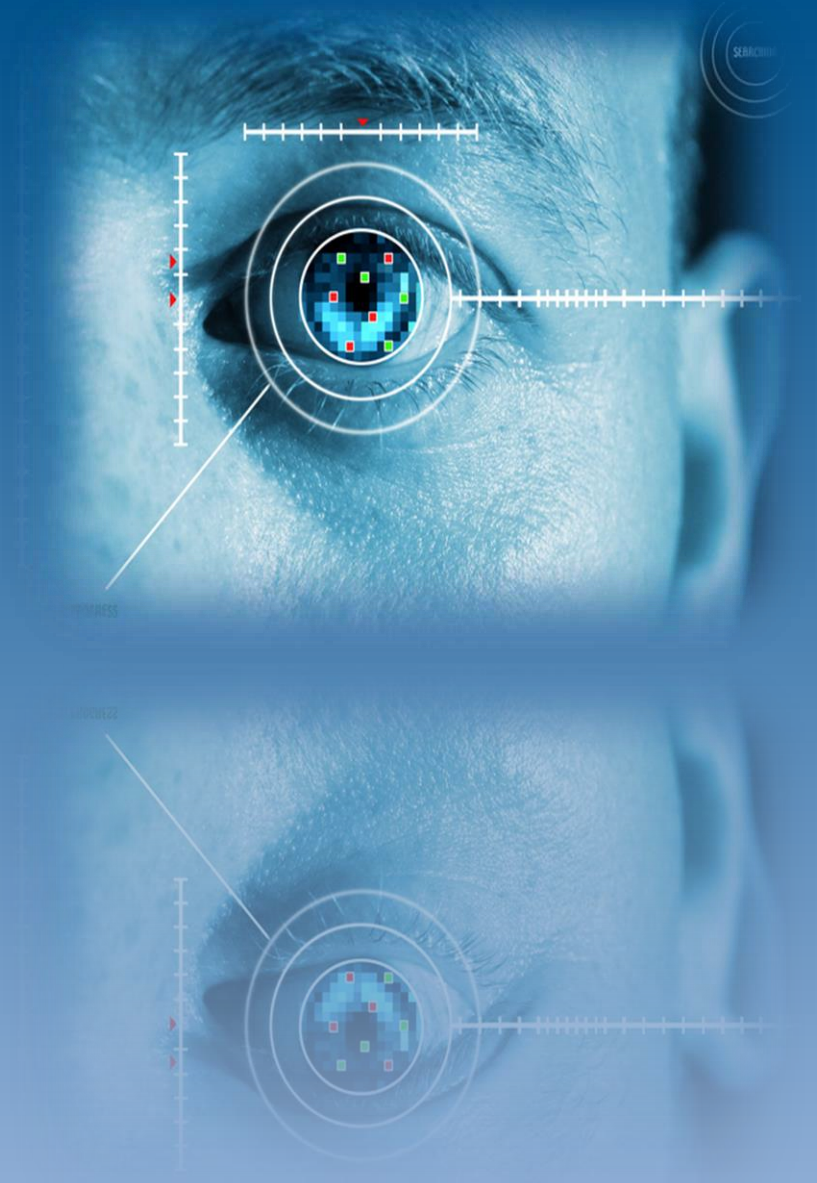
CONTENTS

INTRODUCTION

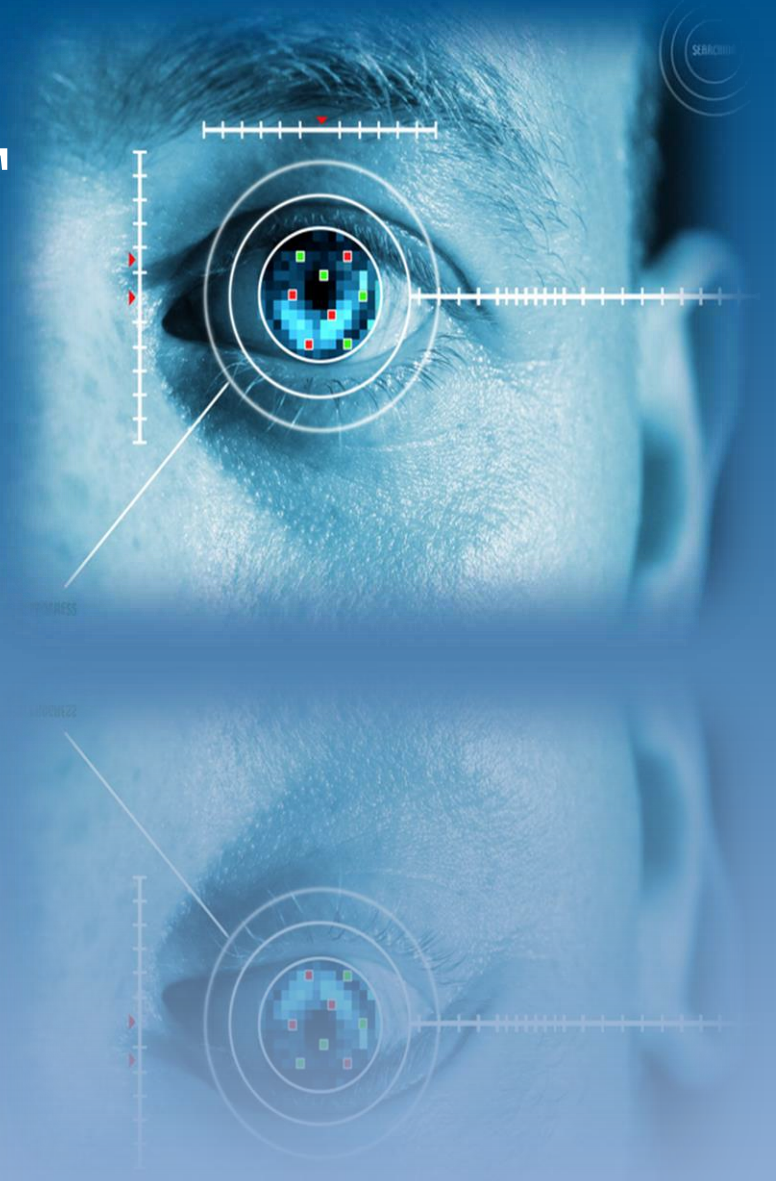
- Biometrics is the science of human recognition.
  In biometrics, "Iris & Retinal Scanning" technologies are known as "ocular based" identification technologies, meaning they rely on unique physiological characteristics of the eye to identify individual.
- Retinal scanning is the analysis of the blood vessels at the back of the eye.
- Iris scanning takes a reading of the characteristics of the iris.

PROJECT OBJECTIVE

- Characteristics of the Iris make it very attractive for use as biometric.
- The unique iris pattern from a digitized image of the eye is encoded into a biometric template, and then stored in a database.
- A biometric template contains an objective mathematical representation of the unique information stored in the iris and allows comparisons between templates.



FEATURES OF THE PROJECT



The iris of the eye has been described as the ideal part of the human body for biometric identification for several reasons:

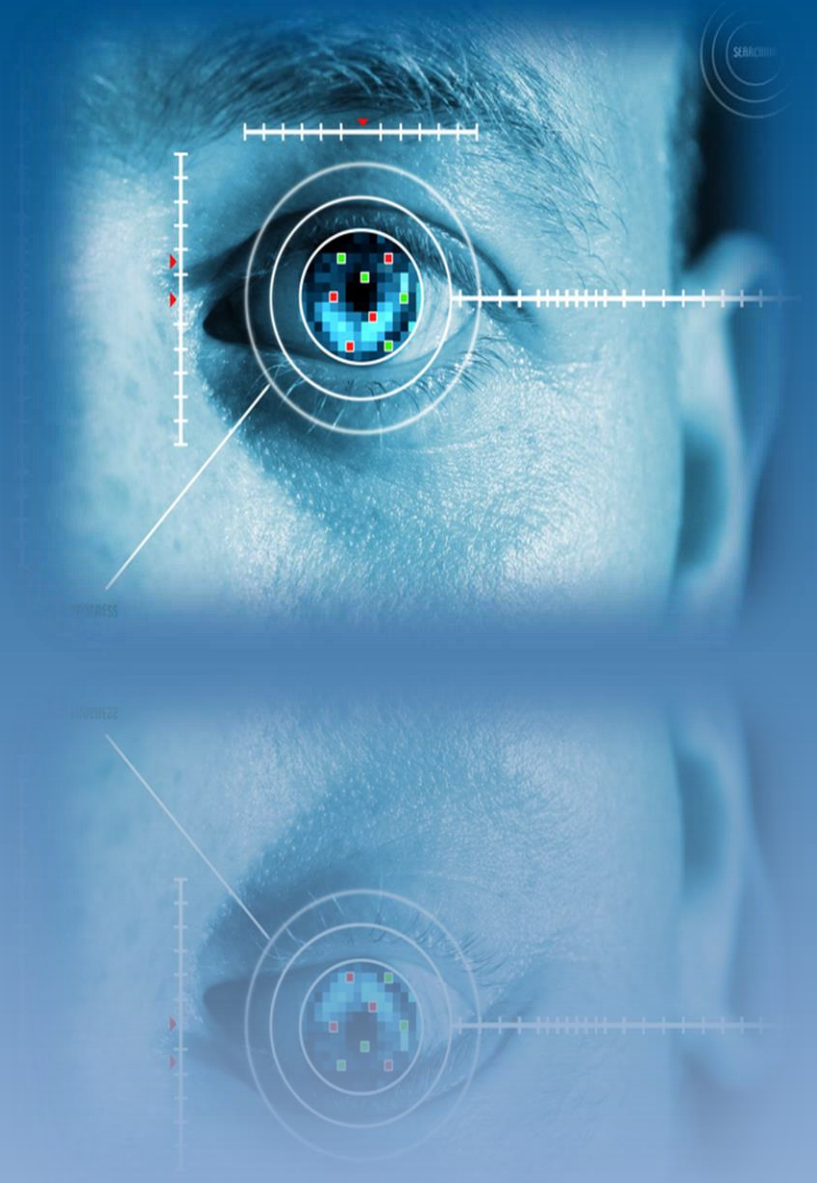
- ✓ It is an internal organ that is well protected against damage and wear by a highly transparent and sensitive membrane (the cornea). This distinguishes it from fingerprints, which can be difficult to recognize after years of certain types of manual labor. The iris is mostly flat, and its geometric configuration is only controlled by two complementary muscles (the sphincter pupillae and dilator pupillae) that control the diameter of the pupil.
- ✓ The iris has a fine texture that like fingerprints is determined randomly during embryonic gestation. Like the fingerprint, it is very hard (if not impossible) to prove that the iris is unique. However, there are so many factors that go into the formation of these textures that the chance of false matches for either is extremely low. Even genetically identical individuals have completely independent iris textures. An iris scan is similar to taking a photograph and can be performed from about 10 cm to a few meters away.

Software Requirements:

We have requires some basic software's to do this project:

The following Software’s are:

- ✓Operating System: Windows 7 (64bit) & Updates Windows
- ✓MATLAB: 2012a and Higher version (Here we used MATLAB 2017a)



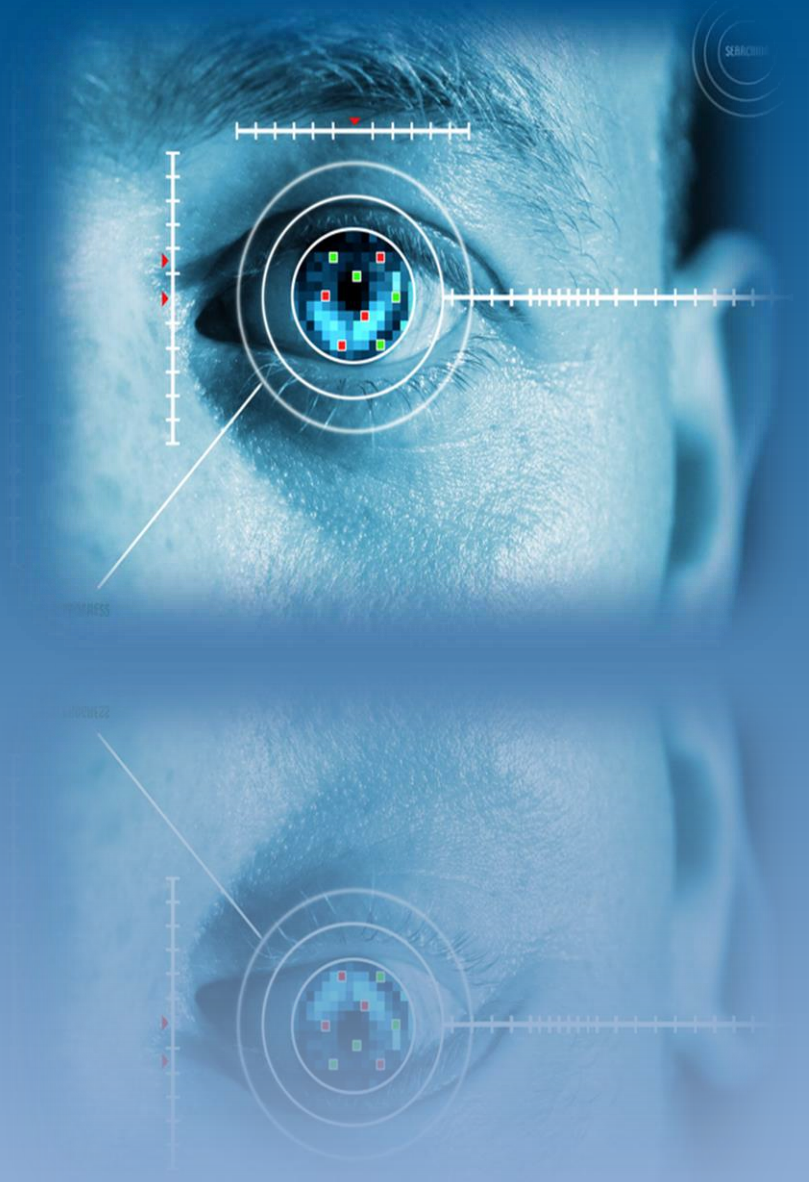
Hardware Requirements:

We have requires some basic hardware's to do this project:

The following hardware’s are:

✓HDD – 250GB or Higher

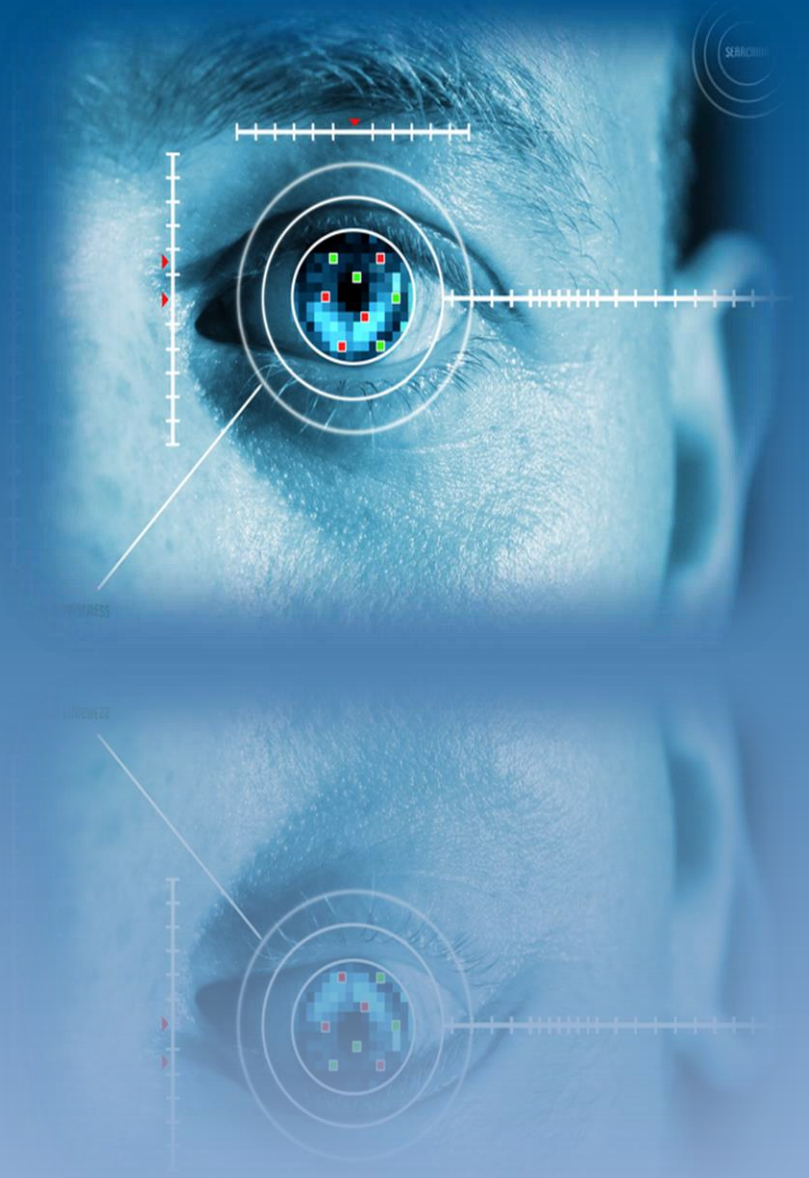
✓Processor: Core 2 Duo or higher



PROJECT ANALYSIS

Here we doing the following steps to recognize the iris:

- ❑ Image Acquisition
- ❑ Converting into Gray Image
- ❑ Subtract Gray Image
- ❑ Histogram
- ❑ Cropped Image
- ❑ Resized Image
- ❑ Smoothing Image using Gaussian Filter
- ❑ Edge Detection by Canny Filter
- ❑ Edge Detection by Sobel Filter
- ❑ Gamma Adjusted Image
- ❑ Hysteresis Thresholding
- ❑ Hugh Transformation
- ❑ Normalized Image
- ❑ Final Output



PROJECT ANALYSIS WITH OUTPUT

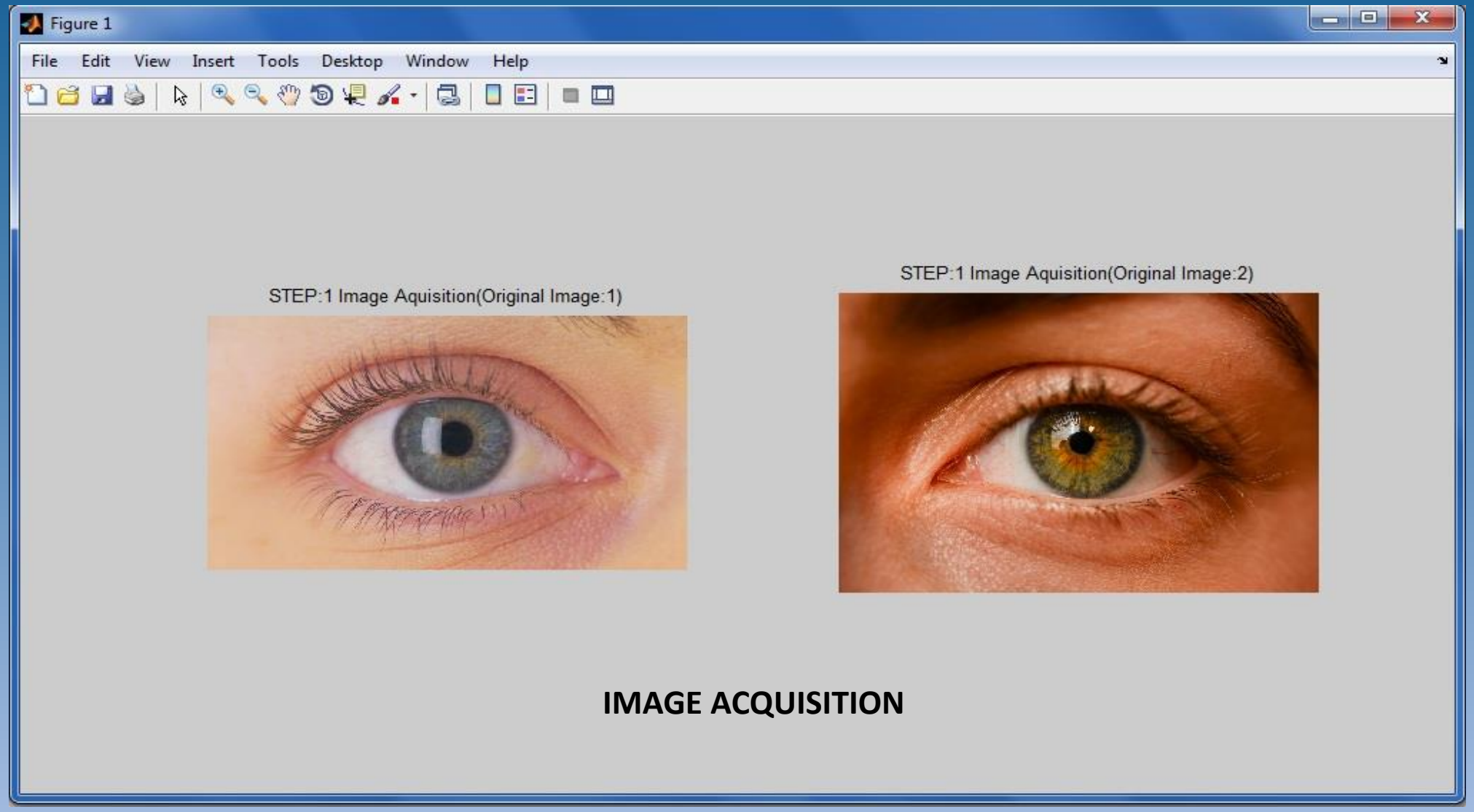


IMAGE ACQUISITION

Figure 2

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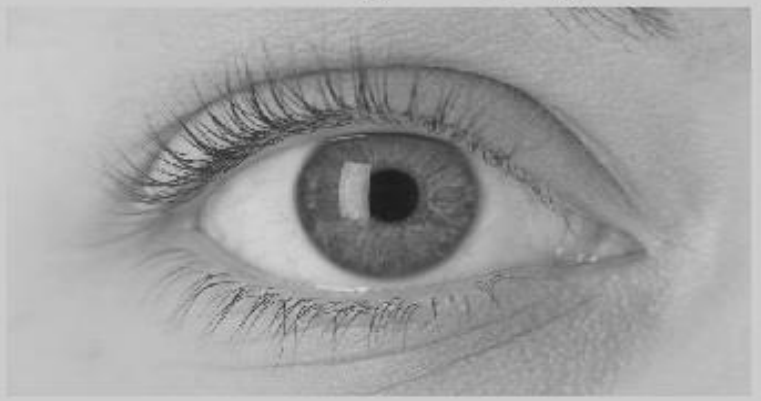
STEP:2 Converting into Gray Image:1



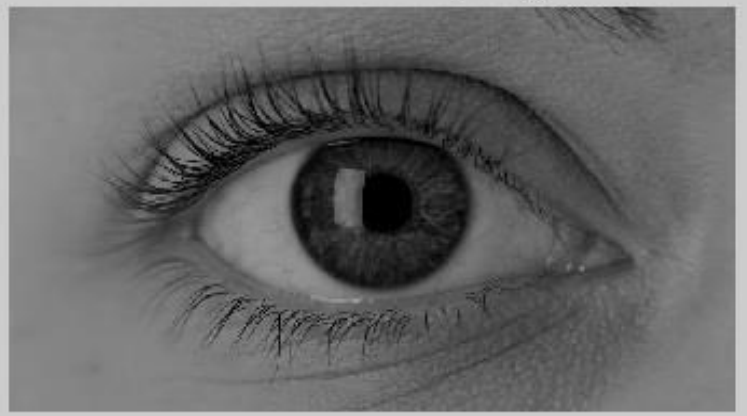
STEP:2 Converting into Gray Image:2

CONVERTING INTO GREY IMAGE

Figure 3

File Edit View Insert Tools Desktop Window Help

STEP:3 Subtracted Gray Image:1



STEP:3 Subtracted Gray Image:2

SUBTRACT GREY IMAGE

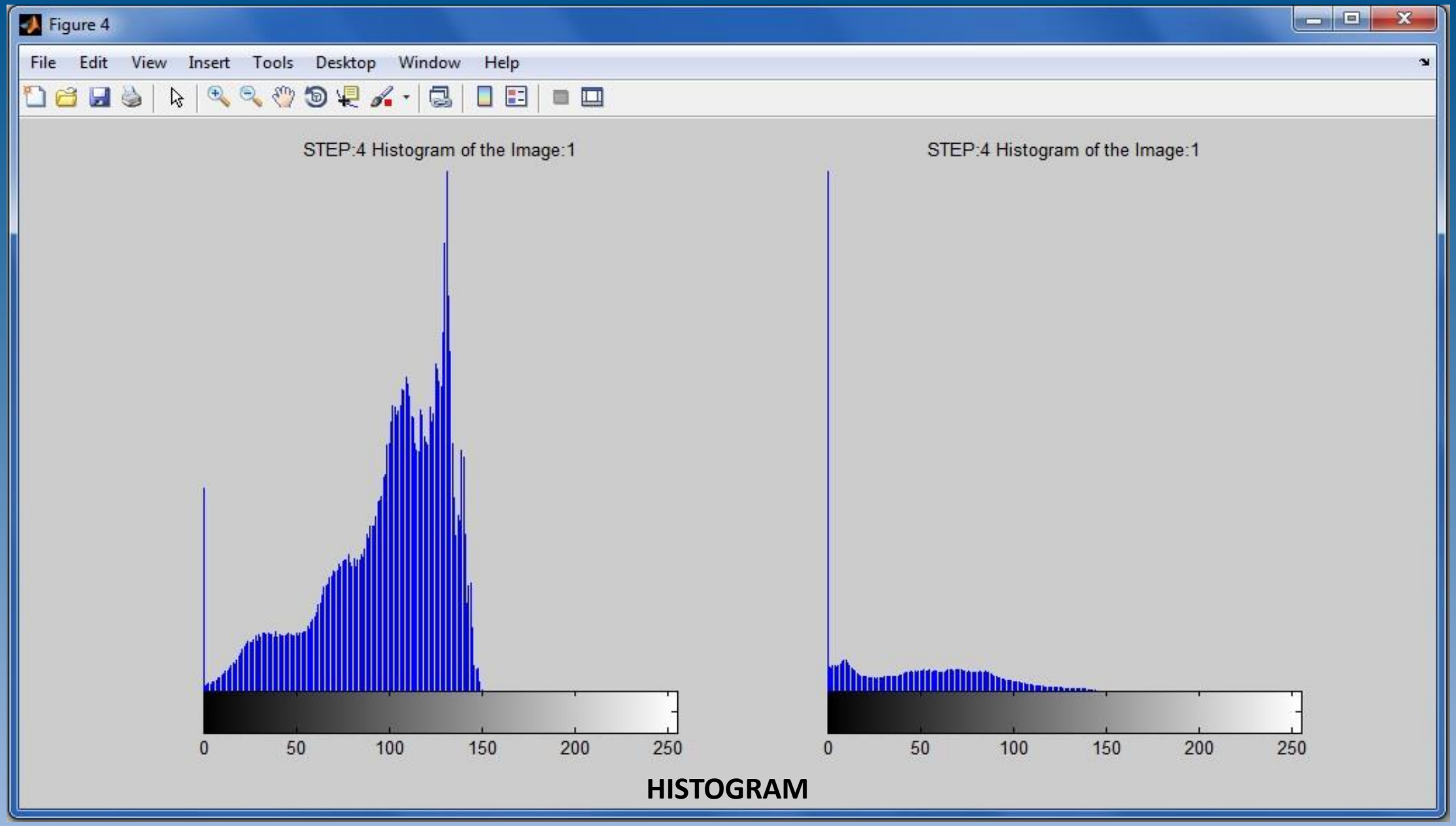


Figure 4
File Edit View Insert Tools Desktop Window Help
STEP:4 Histogram of the Image:1
STEP:4 Histogram of the Image:1
0 50 100 150 200 250
0 50 100 150 200 250

HISTOGRAM

Figure 5

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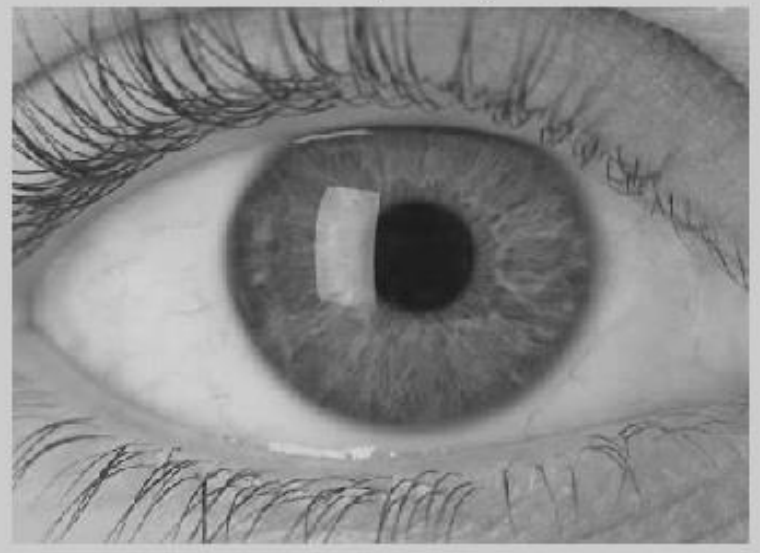
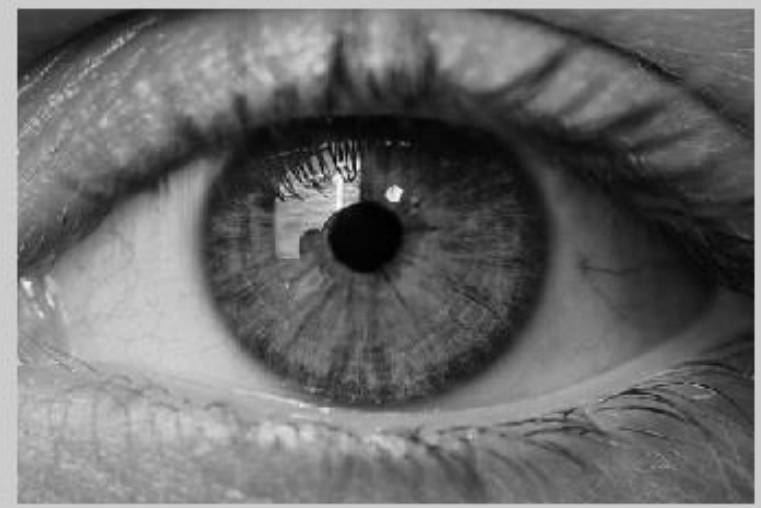
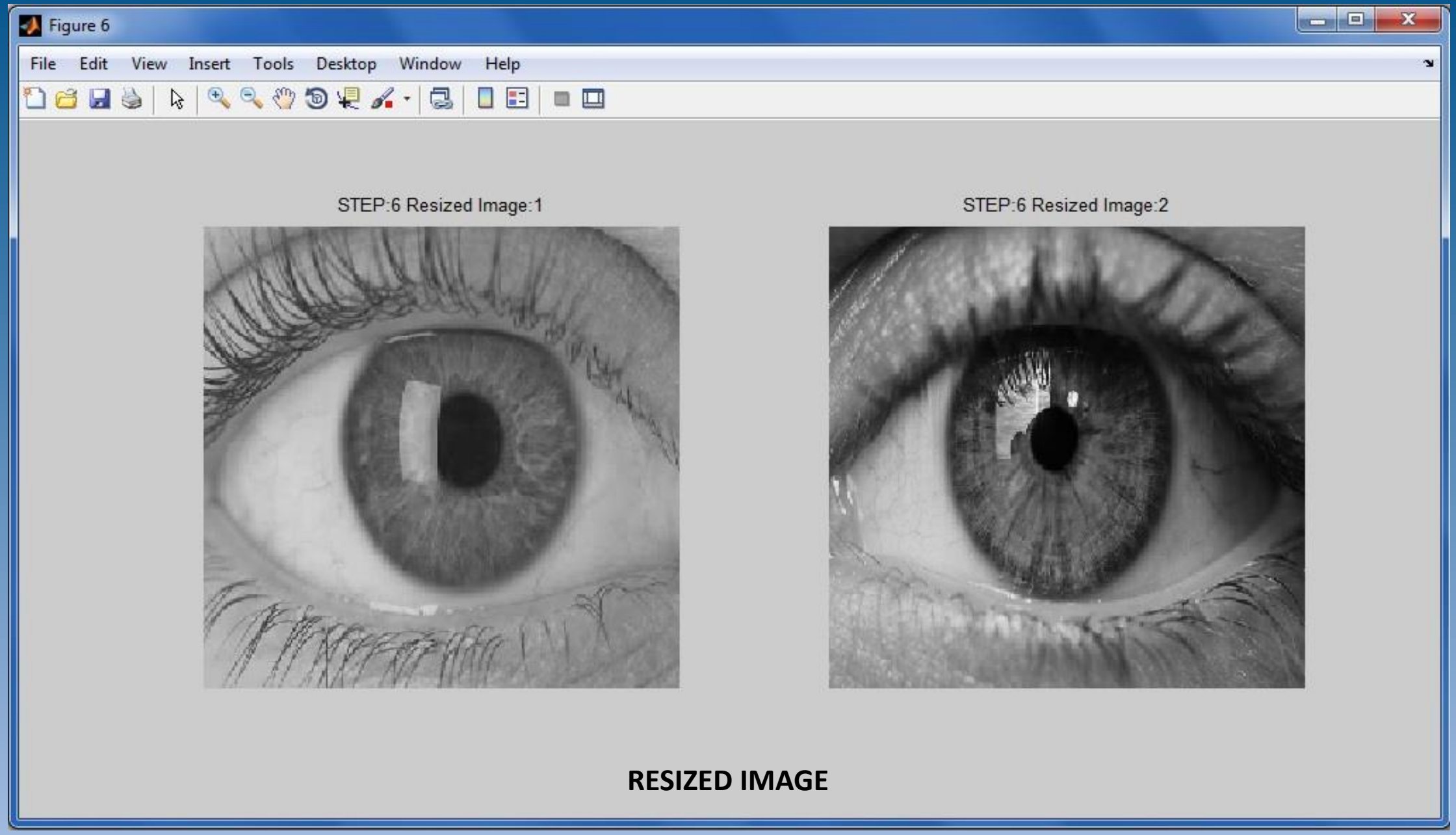
STEP:5 Croped Image:1



STEP:5 Croped Image:2



CROPPED IMAGE



RESIZED IMAGE

Figure 7

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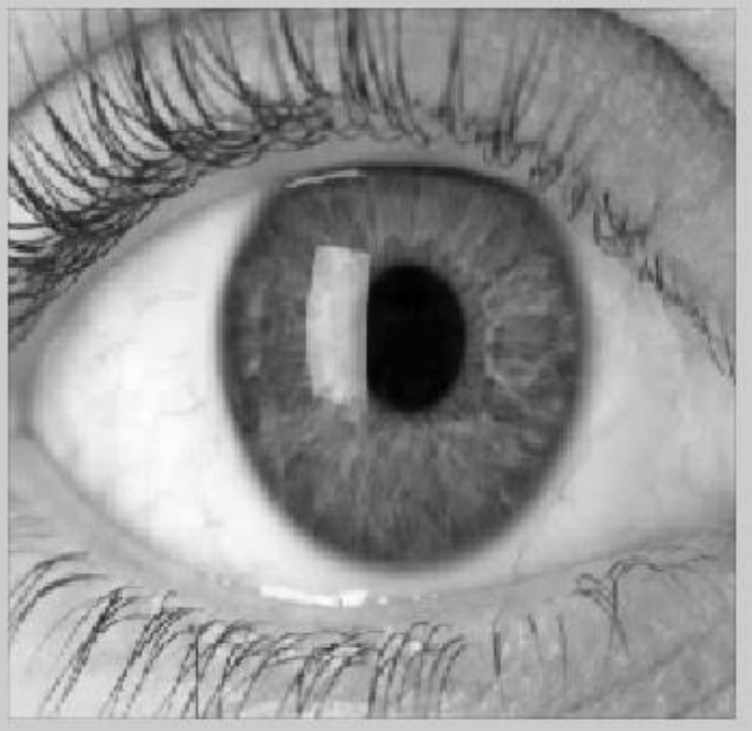
STEP:7 Using Gaussian Filter Smoothing Image:1



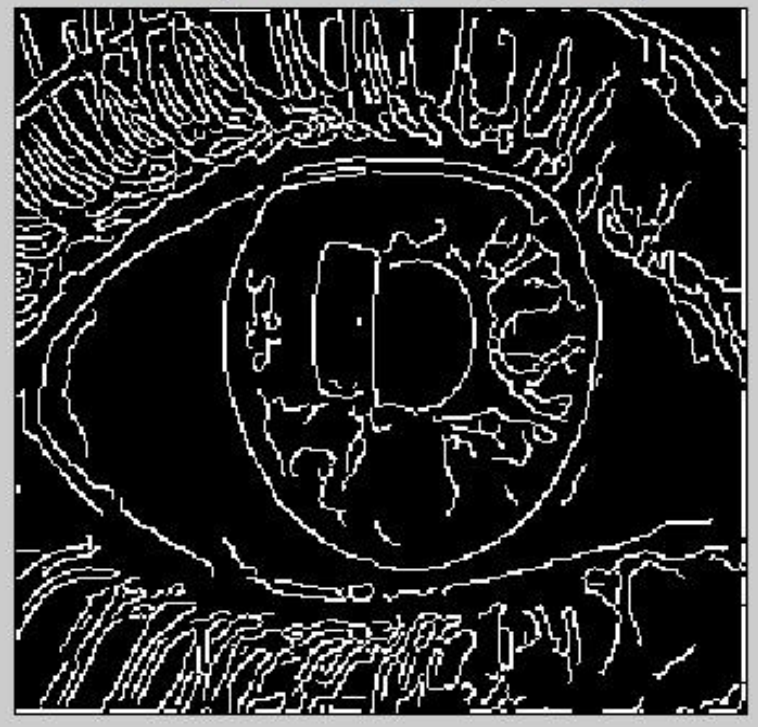
STEP:7 Using Gaussian Filter Smoothing Image:2

SMOOTHING IMAGE BY GAUSSIAN FILTER

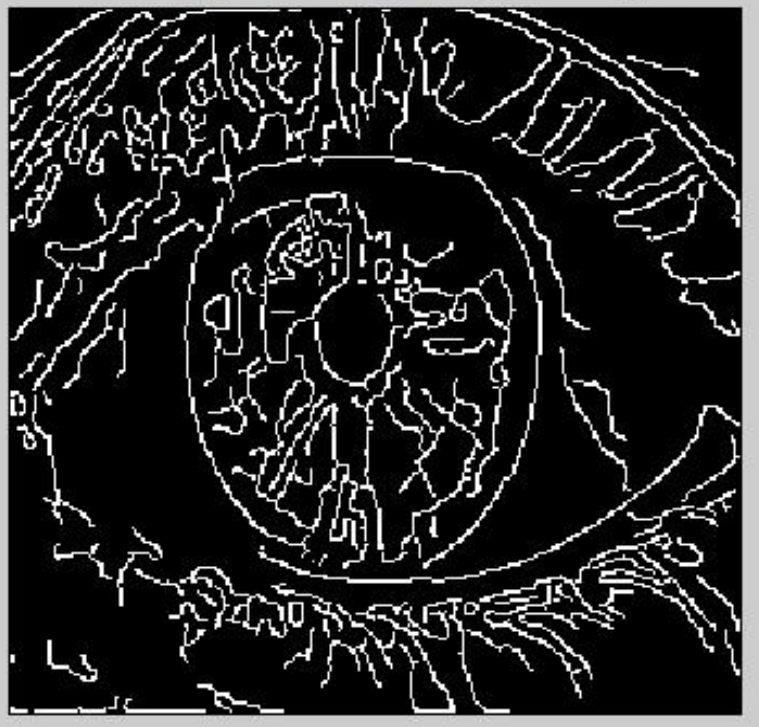
Figure 8

File Edit View Insert Tools Desktop Window Help

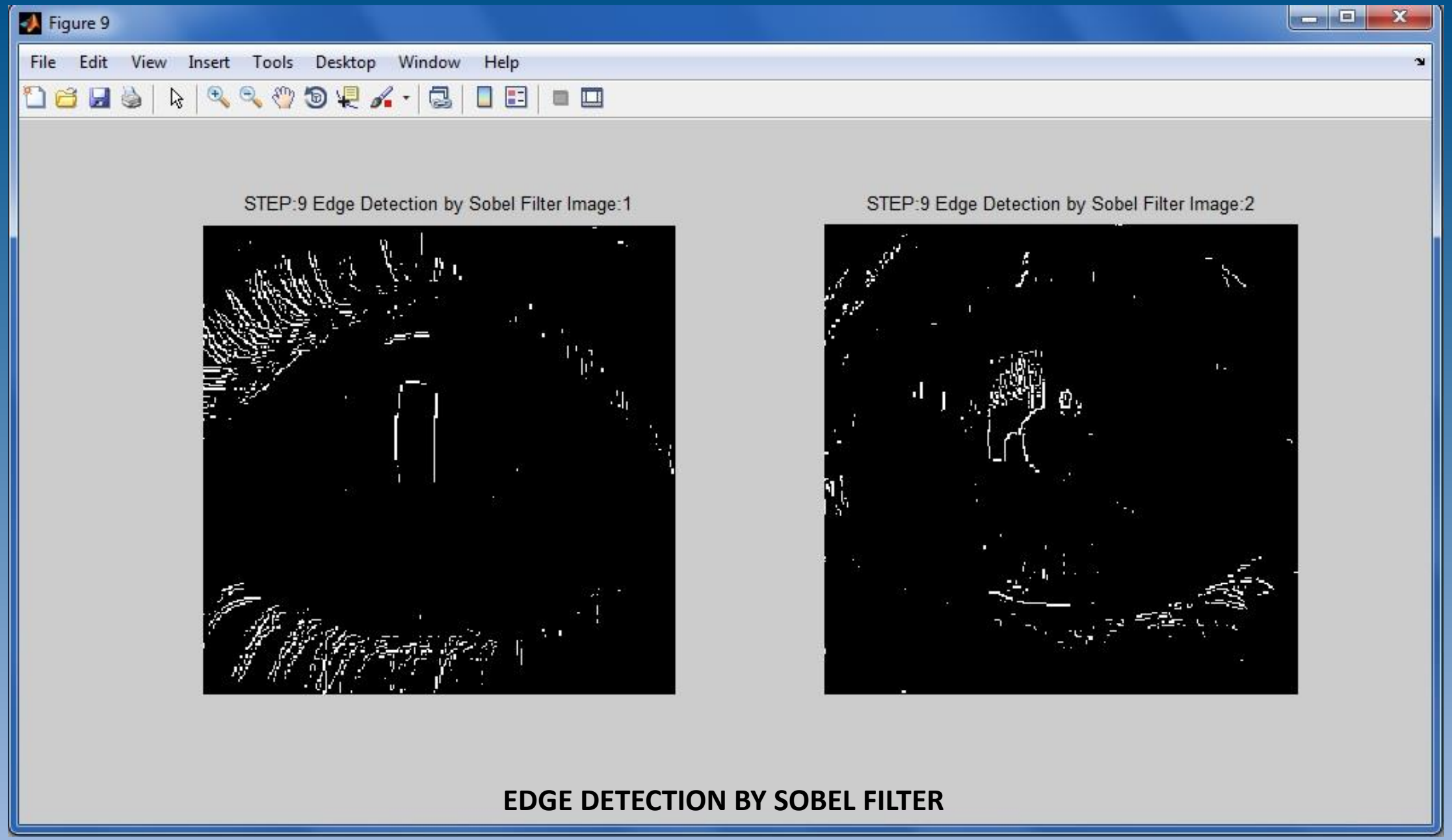
STEP:8 Edge Detection by Canny Filter Image:1



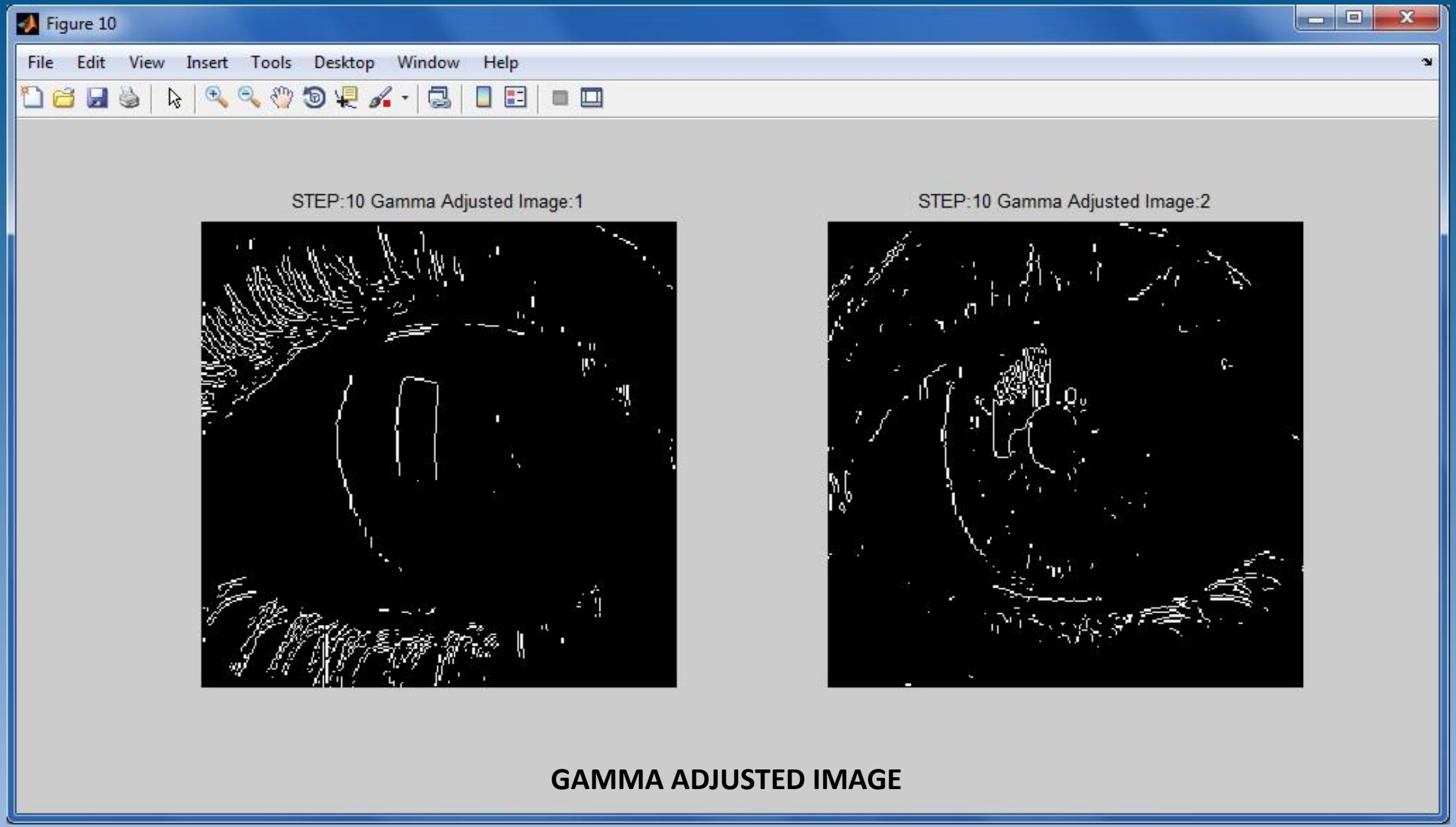
STEP:8 Edge Detection by Canny Filter Image:2



EDGE DETECTION BY CANNY FILTER



EDGE DETECTION BY SOBEL FILTER



GAMMA ADJUSTED IMAGE

Figure 11

File Edit View Insert Tools Desktop Window Help

STEP:11 Hysteresis Thresholding of Image: 1

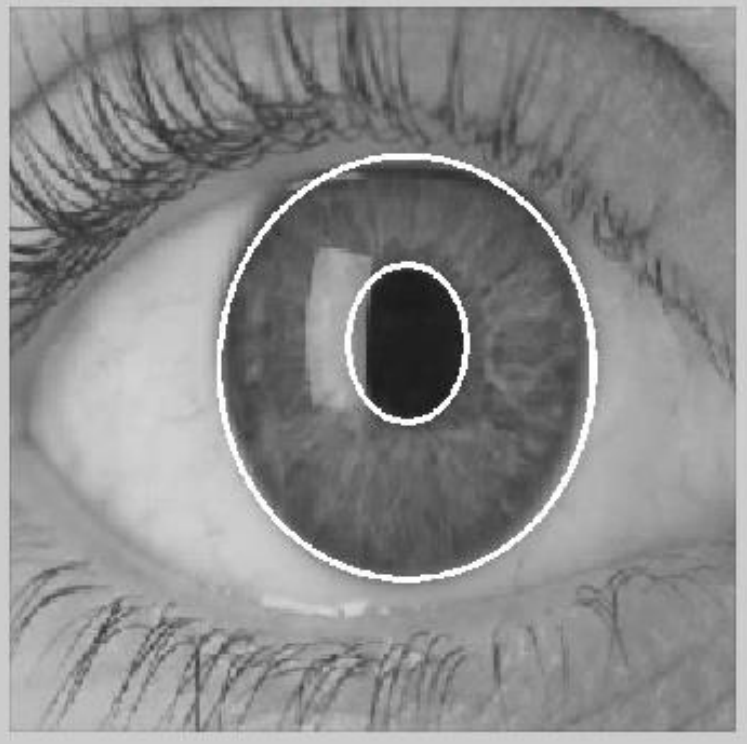
STEP:11 Hysteresis Thresholding of Image: 2

HYSTERESIS THRESHOLDING

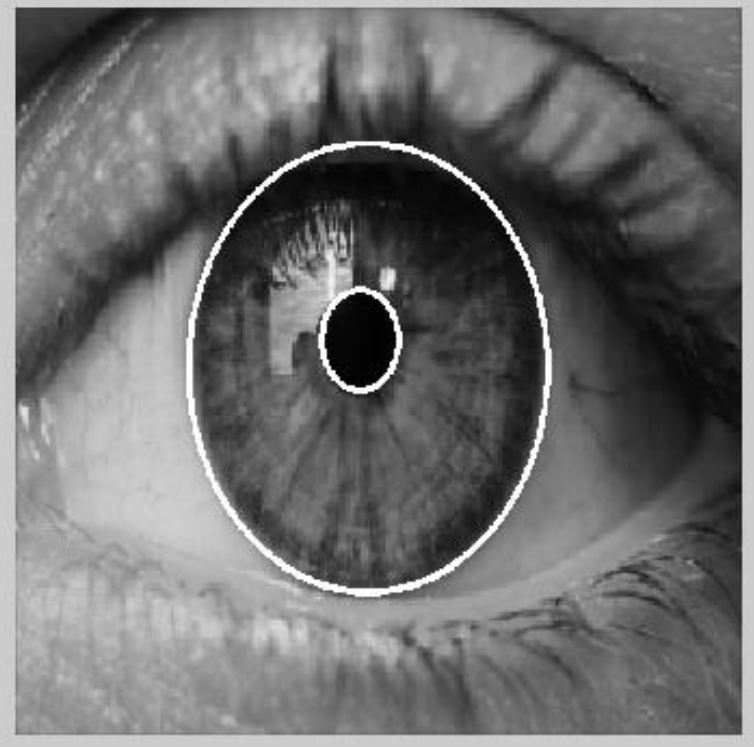
Figure 12

File Edit View Insert Tools Desktop Window Help

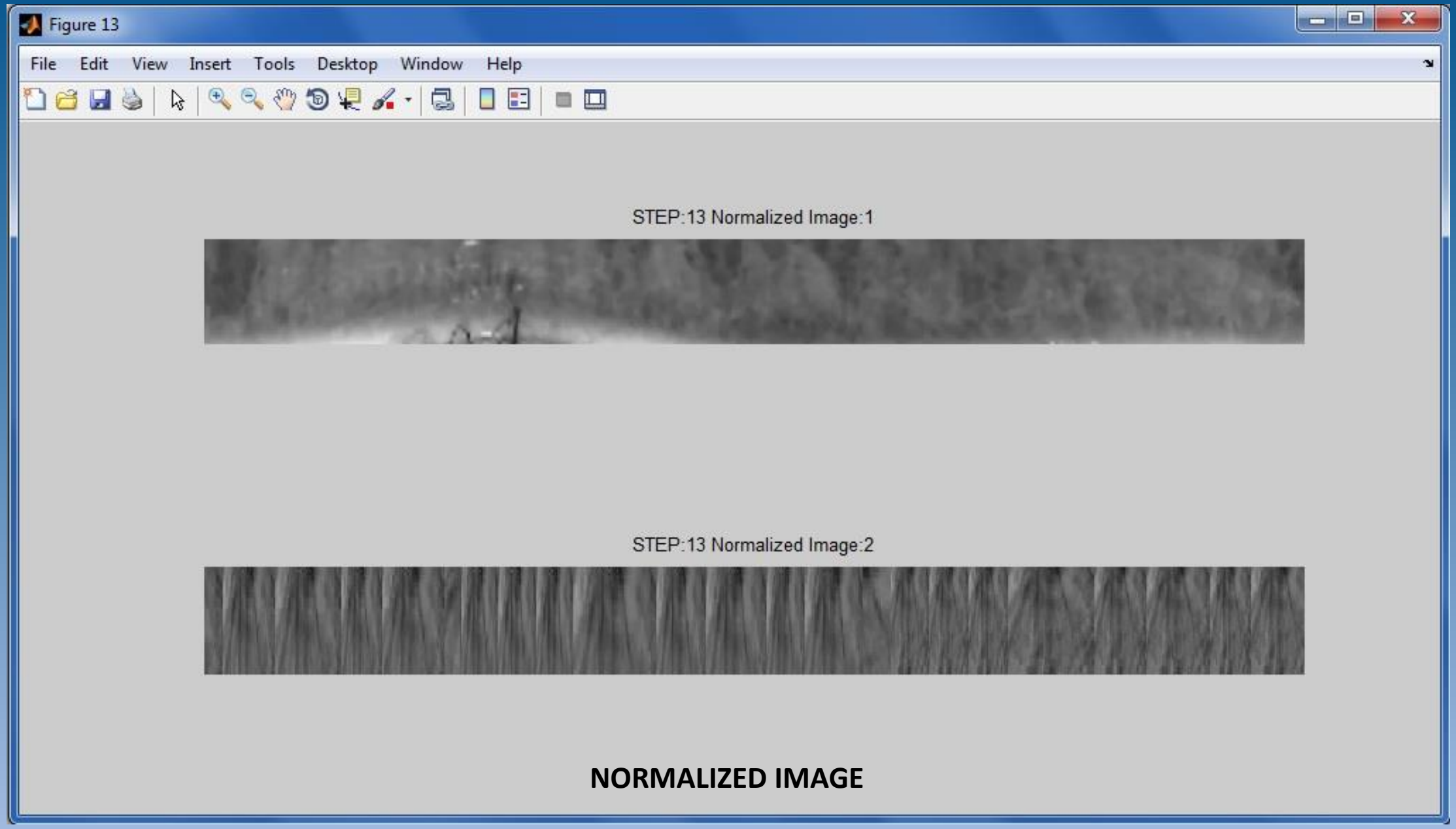
STEP:12 After Hugh Transformation Image:1



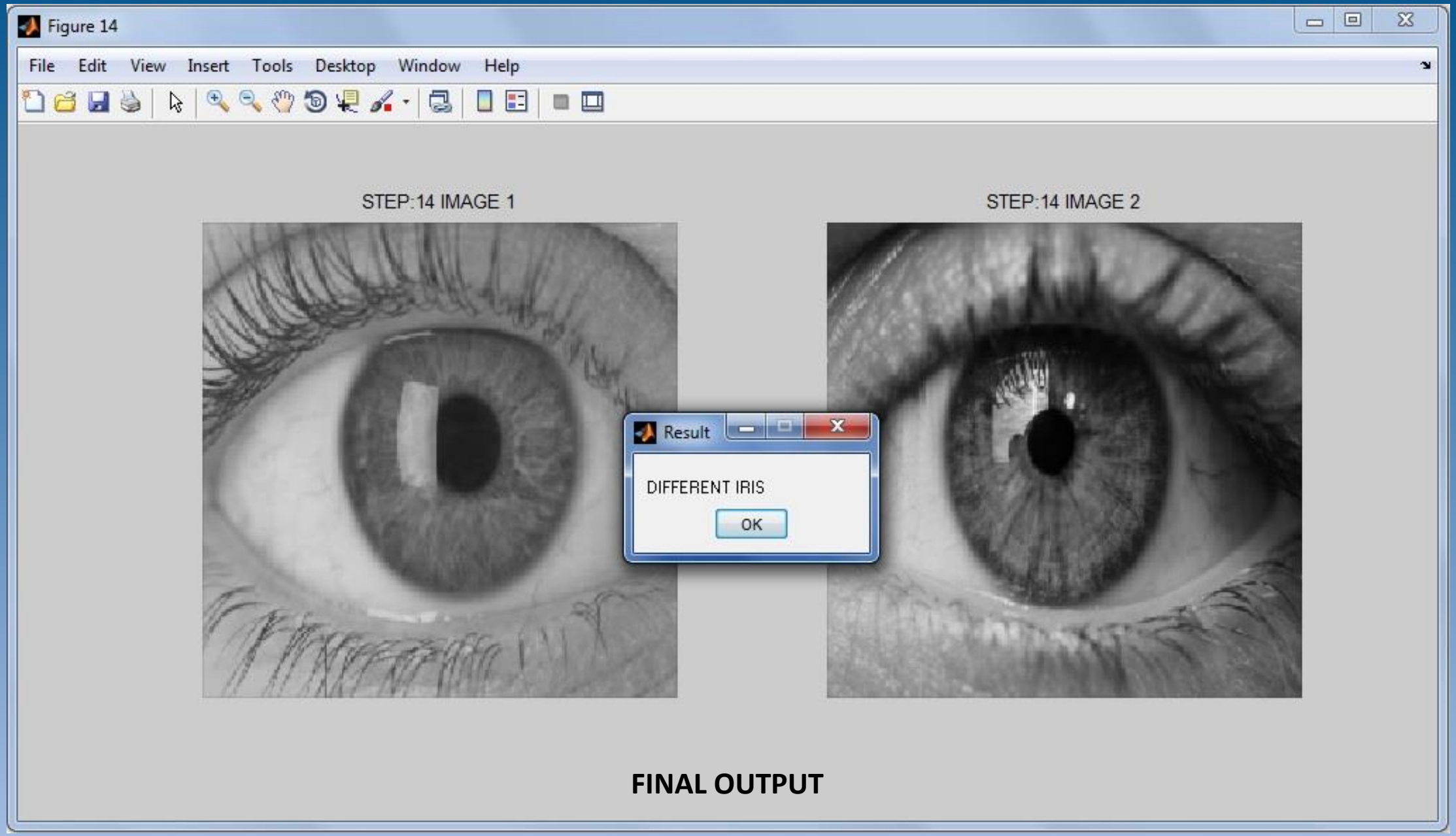
STEP:12 After Hugh Transformation Image:2



HUGH TRANSFORM



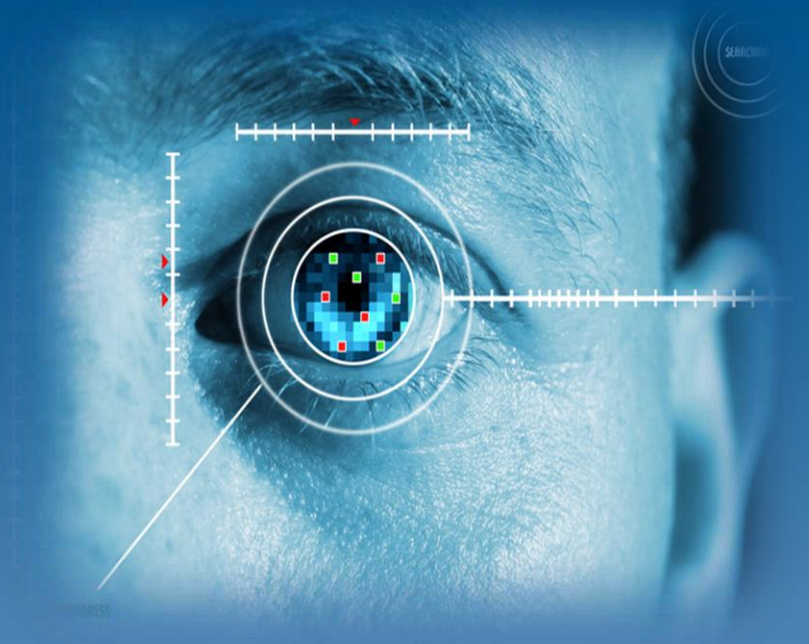
NORMALIZED IMAGE

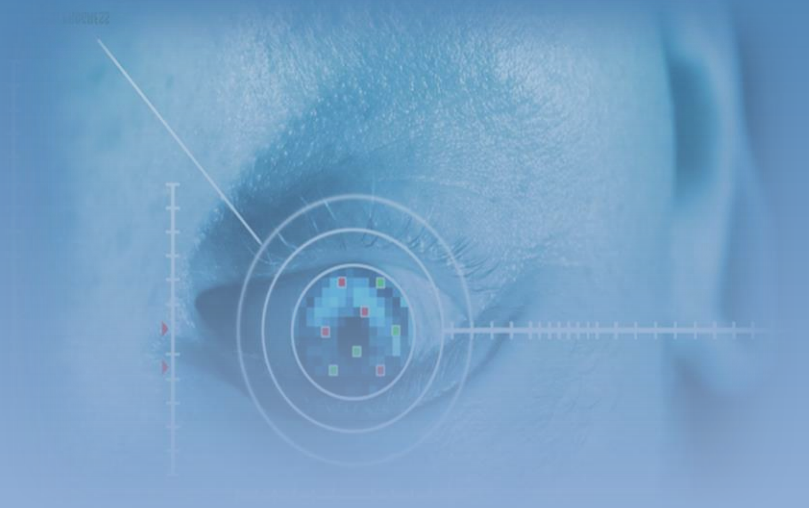


FINAL OUTPUT

FUTURE ENHANCEMENT

In Future it will can be used to door lock or vault lock in Security purpose in Bank or any other any other security place.





ACKNOWLEDGEMENT

I would like to express my gratitude to our guide **Mr. Dipra Mitra(In-Charge of DCST) and Dr. Abhijit Chakraborty(Principal)** who gave me the opportunity to do this project ,which also helped me in doing a lot of research and I came to know about so many things, I am really thankful.

I am also proud of all my friends and family members, for their continuous encouragement and help and support at all the stage of my endeavour, without that active co-operation this project would not have seen the light of success.

THE END