

# MINOR PROJECT REPORT 2018

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**IRIS RECOGNITION USING STANDARD CAMERAS**

# OUTLINE

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## ABOUT US

- Our Story
- Our Vision

## THE PROJECT

- Introduction
- Objective
- Methodology

## FUTURE APPLICATIONS

- Project Schedule
- Project Extension

# ABOUT US

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53 mutual friends including Vineet Agarwal and Arpit Gupta

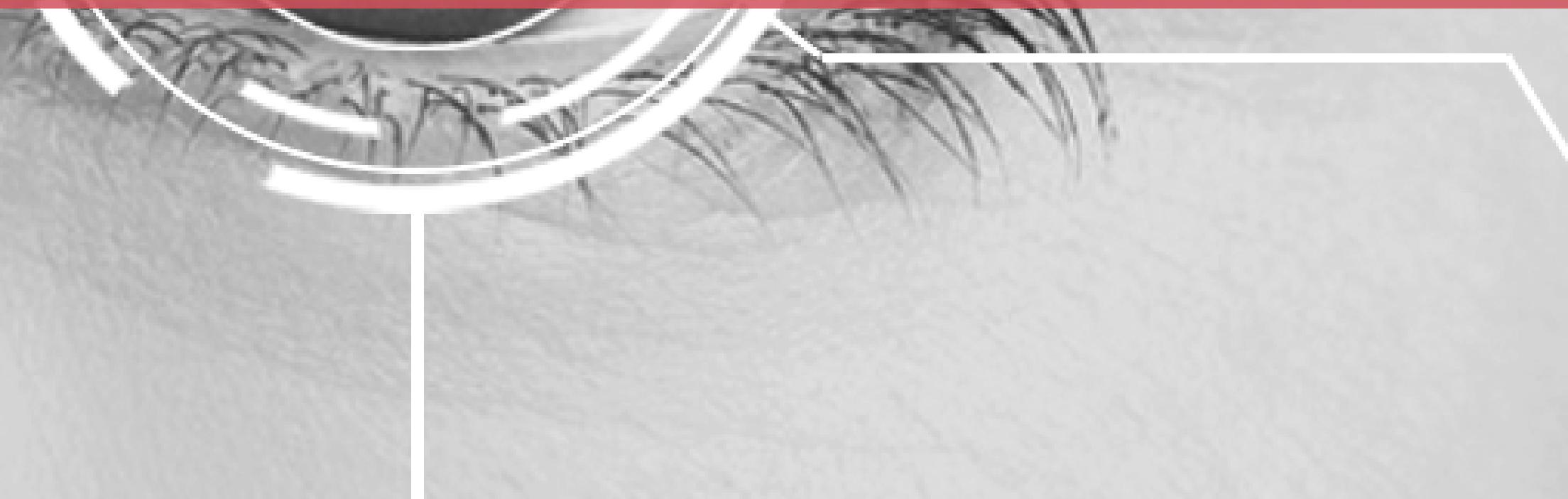
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## PROJECT : INTRODUCTION

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Biometrics is, due to constant demands on higher security, an expanding field and the use of the human iris as a mean of identification has proved to be one of the most promising and secure methods. The iris is, due to its unique biological properties, exceptionally suited for identification; the iris is protected from the environment, stable over time, characteristic in shape and contains a high amount of discriminating information in its pattern. According to a survey done by the National Physical Laboratory in the UK iris recognition (IR) outperforms other biometric identification methods (e.g. fingerprints, voice and face recognition) proving the technology to be the safest.



## PROJECT : OBJECTIVE

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All iris recognition systems found in literature are based on specialized hardware, imaging the eye under favorable conditions. As imaging technology is rapidly becoming cheaper and the quality of off the shelf cameras is constantly rising, the idea behind this thesis is to look into the possibilities of making iris recognition an inexpensive and widespread technology using cheap imaging devices in less restrictive imaging situations.



# PROJECT : METHODOLOGY

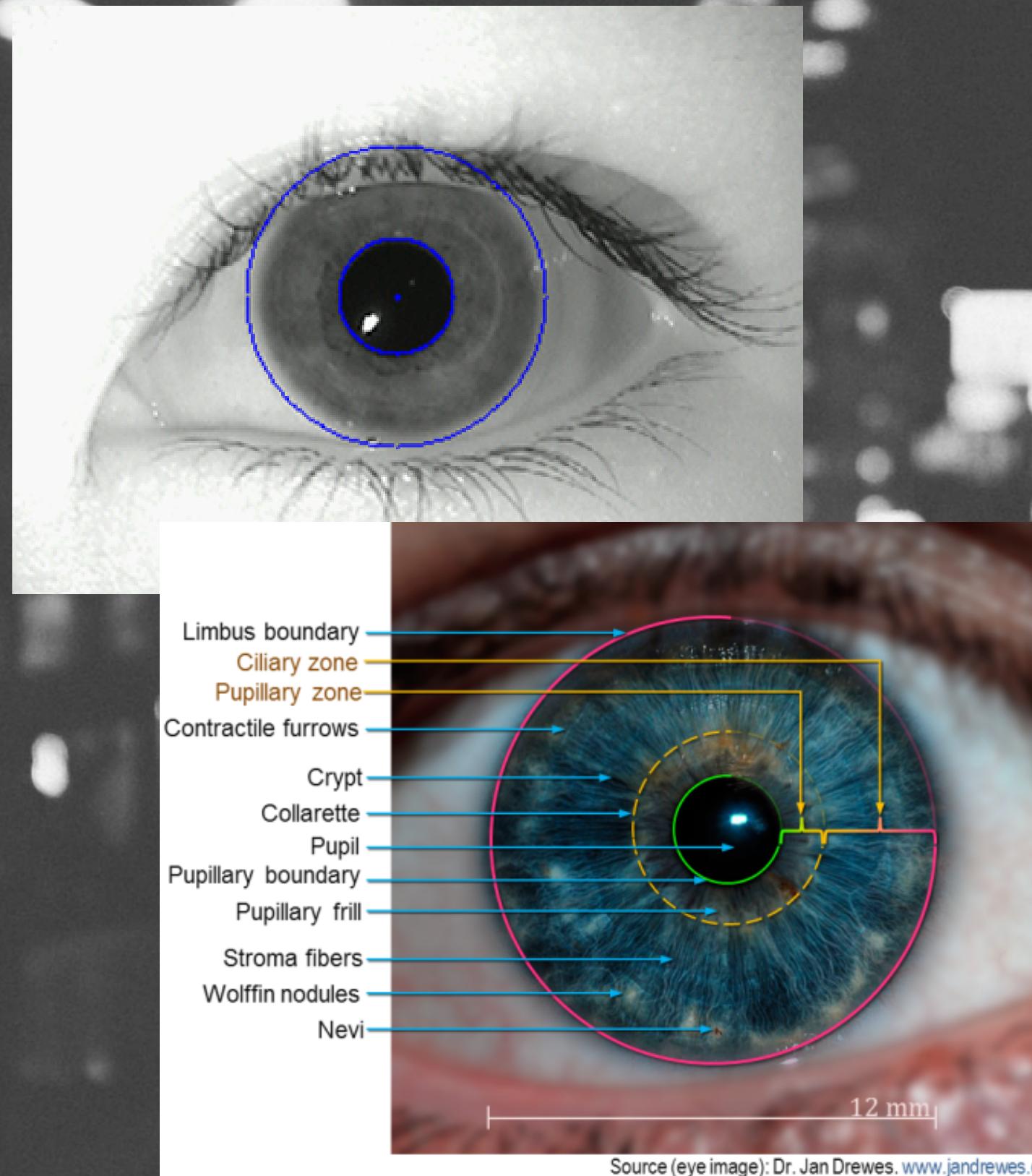
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IR Process  
Segmentation  
Normalisation  
Mask Generation  
Encoding and Matching  
Proposed new method for Segmentation

# SEGMENTATION

The first stage of iris segmentation to isolate the actual iris region in a digital eye image.

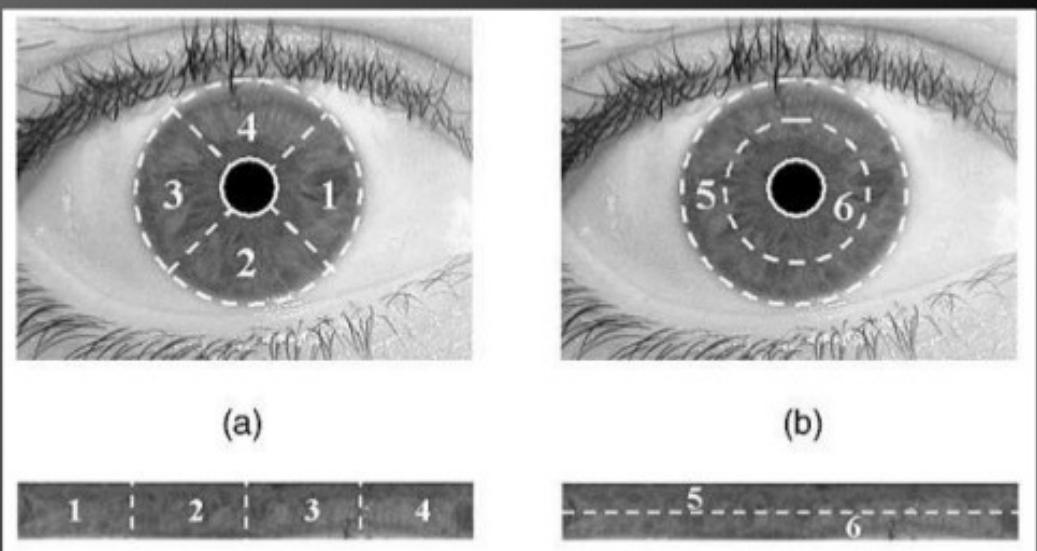
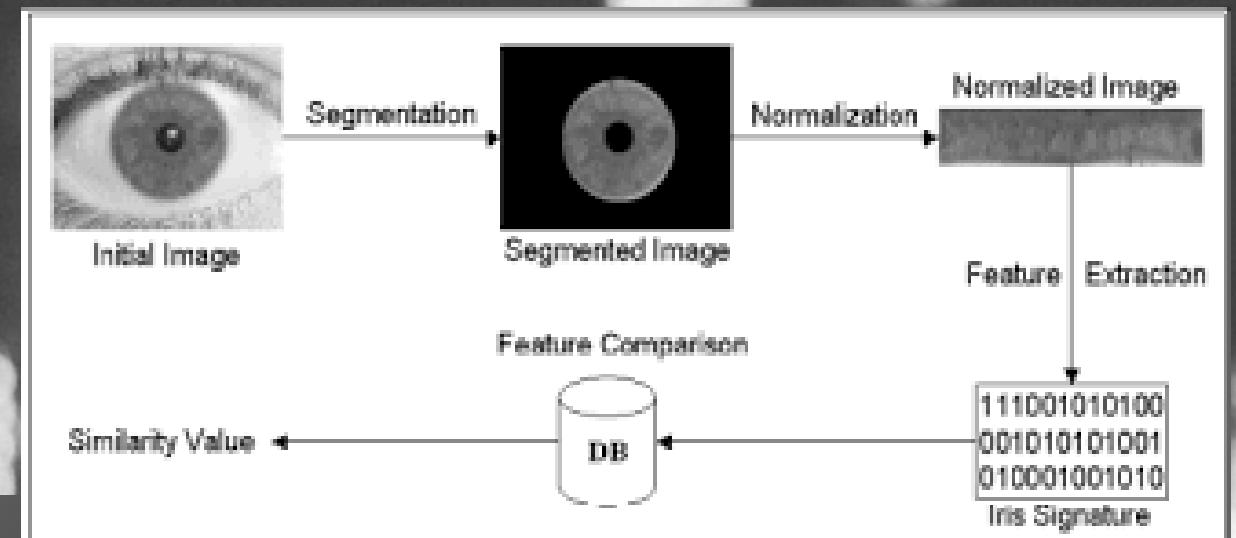
The iris region, can be approximated by two circles, one for the iris/sclera boundary and another, interior to the first, for the iris/pupil boundary.



# NORMALISATION

Once the iris segmented ,the next stage transform the iris region so that it has fixed dimensions in order to allow comparisons.

Since variations in the eye like pupil dilation and the inconsistence iris normalization is needed.



## Iris Scanning

Normalization phase: Iris is aligned and checked for around 200 feature points

# FUTURE APPLICATIONS

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**This project has shown that an IR system can be constructed using standard camera equipment and presents methods that work under these circumstances. The real life performance of such a system was not assessed as that would have required the construction and evaluation of the actual iris imaging that is not discussed in this synopsis. To construct such a system would be an interesting project indeed and would give rise to new problems and interesting solutions. If such a project give a fruitful result, IR recognition could soon be much more common than it is today. It would also be interesting to investigate the use of more encoding and matching methods to perhaps improve recognition rate. A system for automatic assessment of image quality and image device control to improve the imaging is another interesting project.**



**LET US KNOW  
WHAT YOU THINK**

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**SIDDHANT JAIN  
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