A RELIABLE SYSTEM FOR EAR RECOGNITION VIA LOCAL FEATURES

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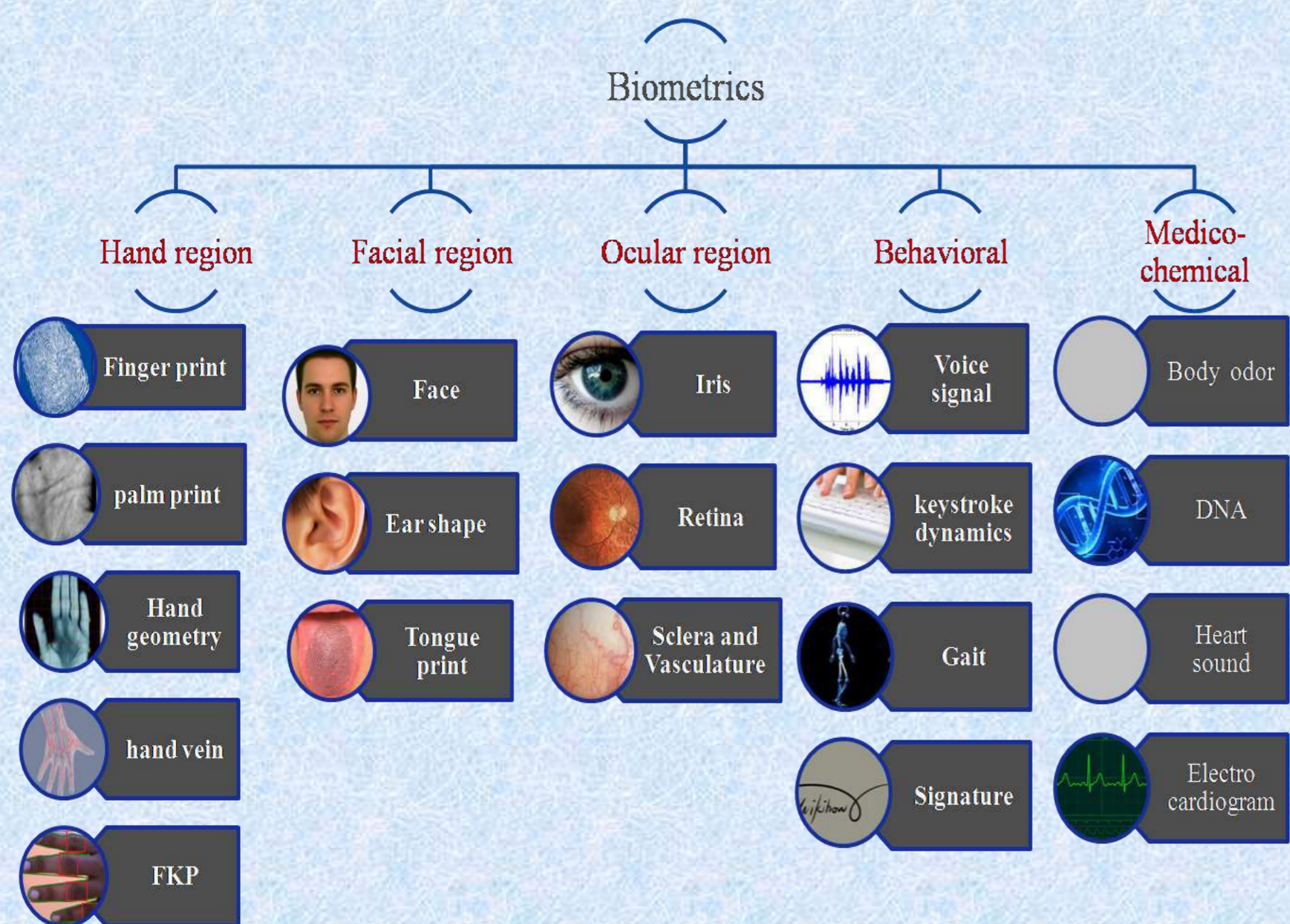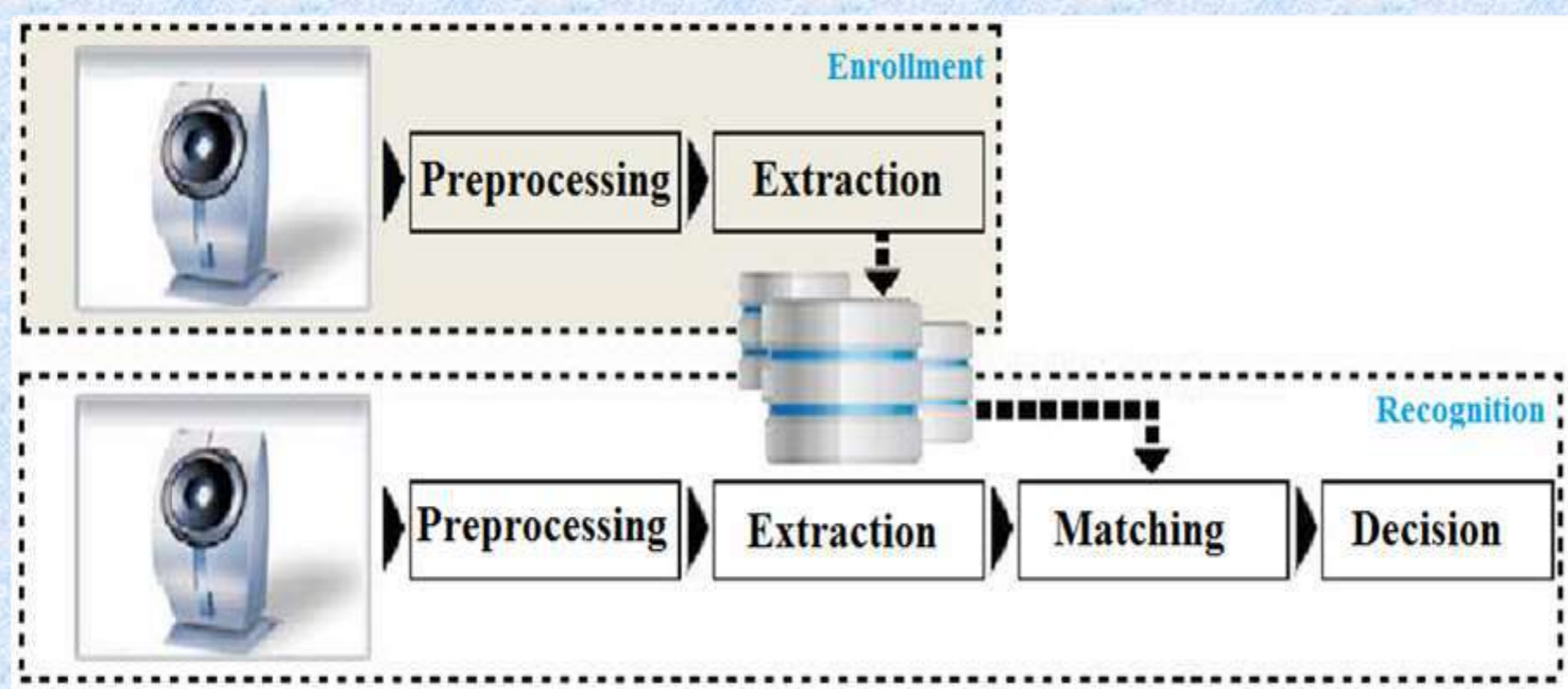Ibtissam Seggar and Manel hafiane   Dr.Oussama Aiadi

Introduction

➤The biometric is an operation can   verify the identity of a person based on morphological, biological and behavioral characteristics in the human body (finger print, face, ear, iris, ...etc)

➤ or another way, it enables the identification or authentication of a person on the basis of recognizable and verifiable data of its own
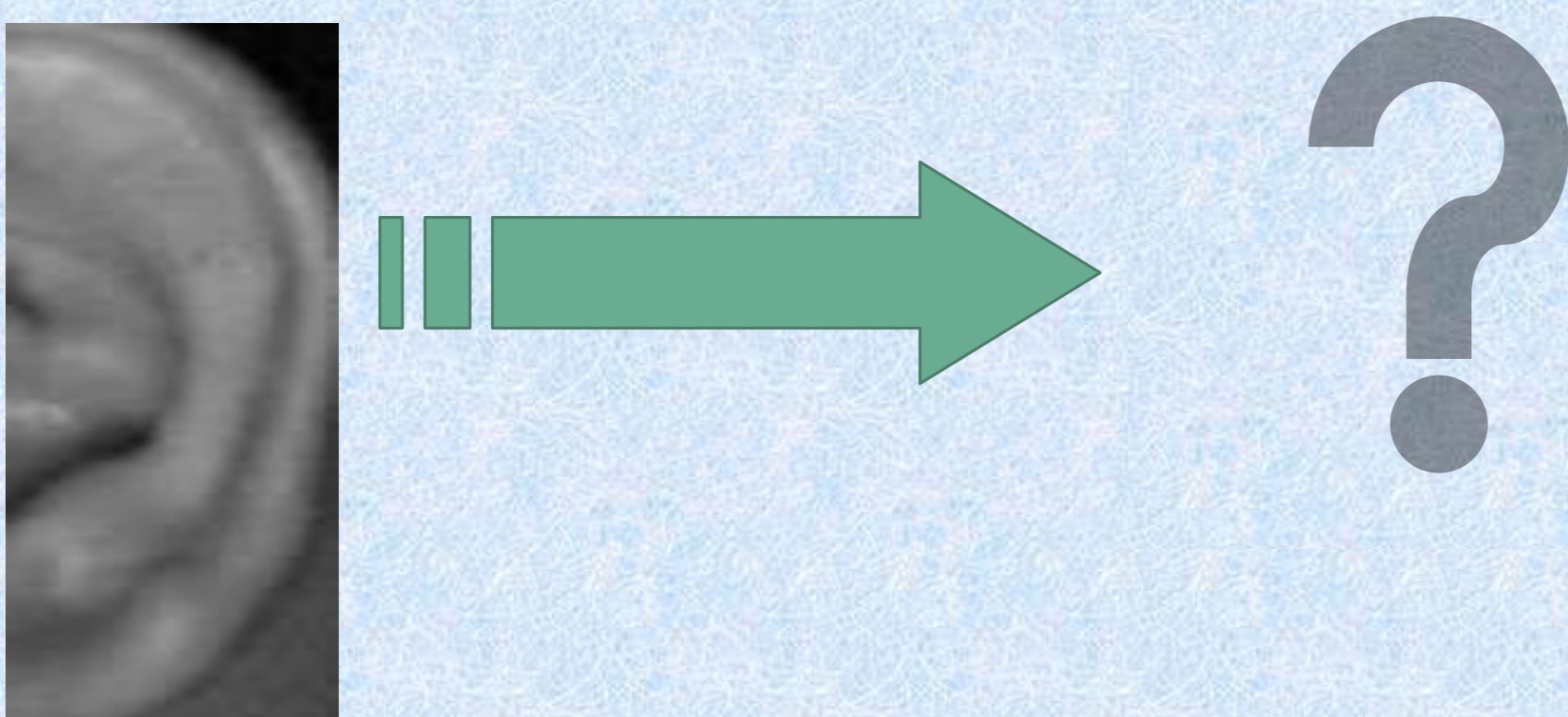
Biometric Modalities

Biometrics

- Hand region
  - Finger print
  - palm print
  - Hand geometry
  - hand vein
  - FKP
- Facial region
  - Face
  - Ear shape
  - Tongue print
- Ocular region
  - Iris
  - Retina
  - Sclera and Vasculature
- Behavioral
  - Voice signal
  - keystroke dynamics
  - Gait
  - Signature
- Medico-chemical
  - Body odor
  - DNA
  - Heart sound
  - Electro cardiogram

Biometric system

Enrollment: Preprocessing → Extraction

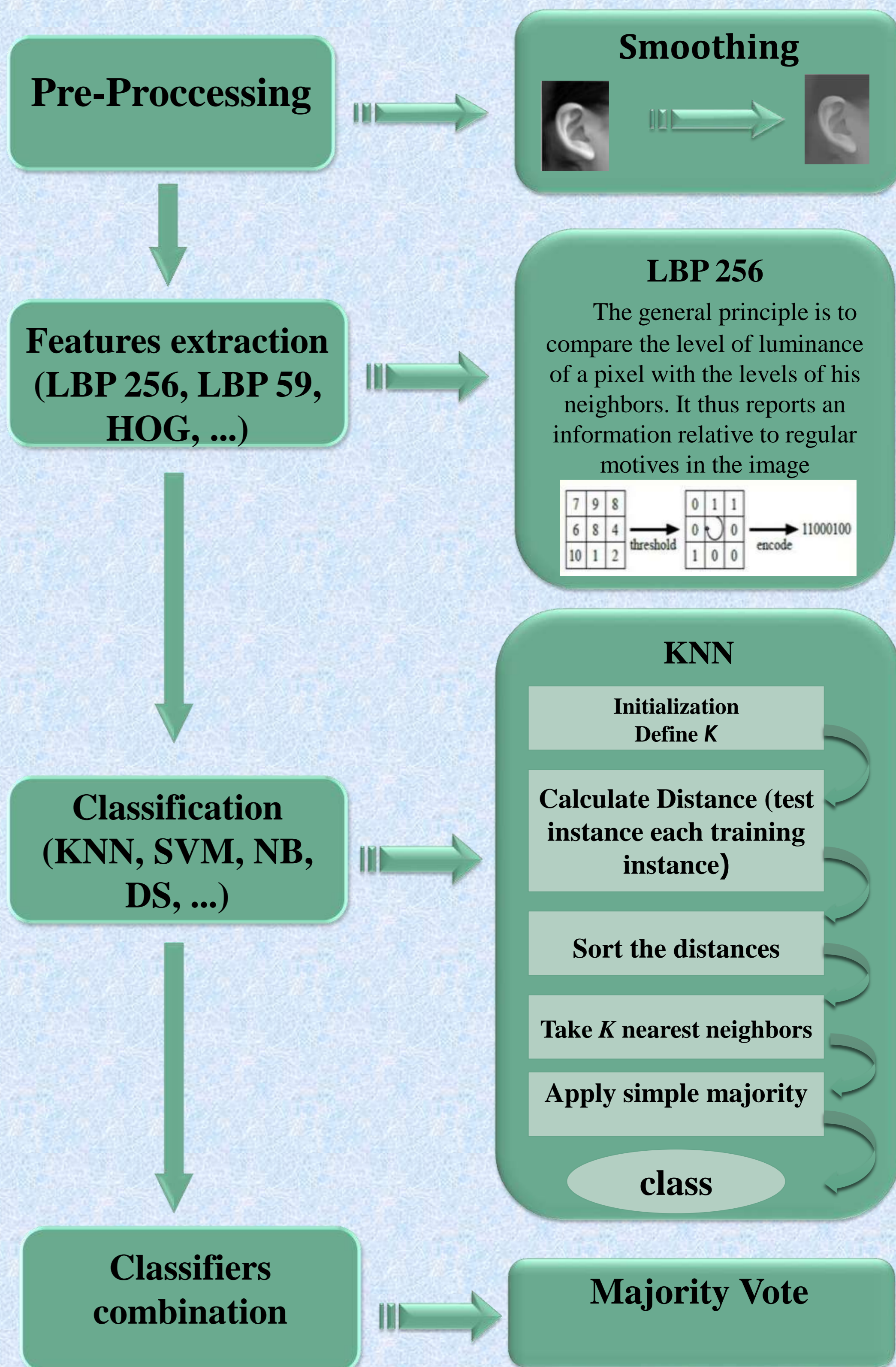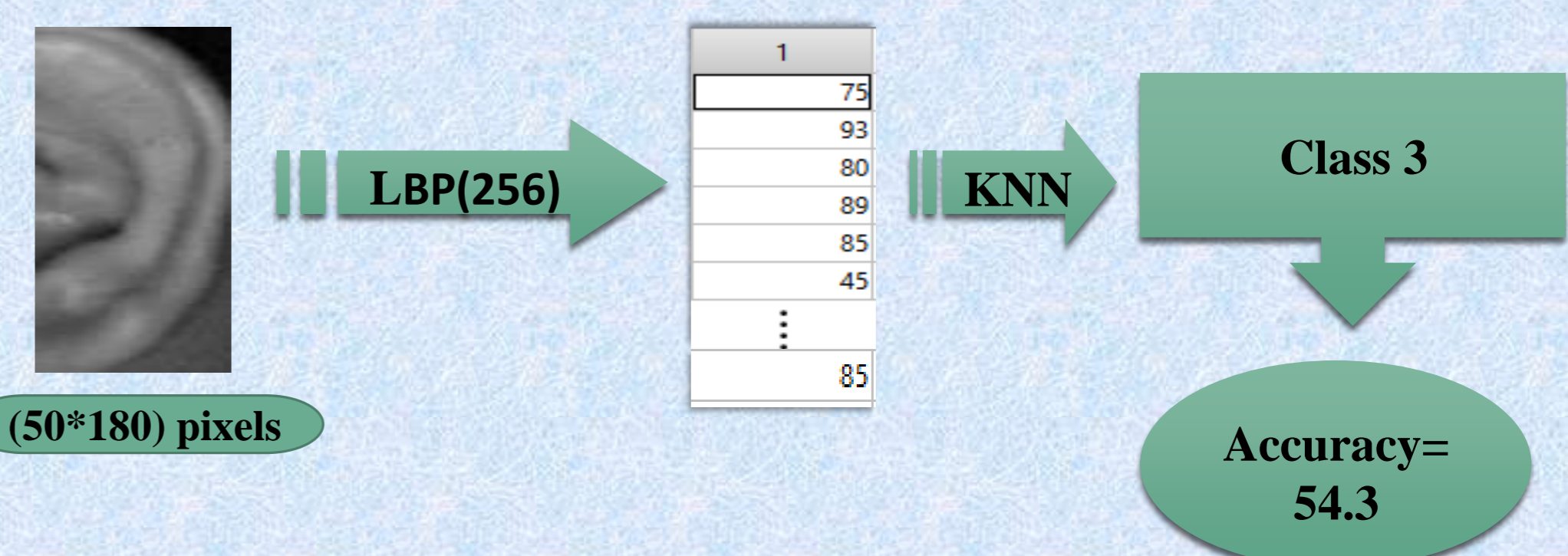Recognition: Preprocessing → Extraction → Matching → Decision

The problem

From the various modalities of the biometric recognition it the ear exist, how we can identify the people has to leave ears? And what are the used methods?

?

Our method

Pre-Proccessing → **Smoothing**

Features extraction (LBP 256, LBP 59, HOG, ...) →

LBP 256

The general principle is to compare the level of luminance of a pixel with the levels of his neighbors. It thus reports an information relative to regular motives in the image

7	9	8
6	8	4
10	1	2

threshold →

0	1	1
0		0
1	0	0

encode → 11000100

Classification (KNN, SVM, NB, DS, ...) →

KNN

- Initialization Define *K*
- Calculate Distance (test instance each training instance)
- Sort the distances
- Take *K* nearest neighbors
- Apply simple majority

class

Classifiers combination → **Majority Vote**

Experimental

(50*180) pixels → LBP(256) →

1
75
93
80
89
85
45
⋮
85

→ KNN → Class 3 → Accuracy= 54.3

Dataset

❖Representative samples from our dataset IITD 1 (221 subject)

001_1   001_2   001_3
003_3   003_4   003_5
005_3   005_4   006_1