- **Face recognition**

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Face recognition

- It requires no physical interaction on behalf of the user.
- It is accurate and allows for high enrolment and verification rates.
- It can use your existing hardware infrastructure, existing camaras and image capture Devices will work with no problems

- In Facial recognition there are two types of comparison -

- VERIFICATION- The system compares the given individual with who they say they are and gives a yes or no decision.

- IDENTIFICATION- The system compares the given individual to all the Other individuals in the database and gives a ranked list of matches.

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All identification or authentication technologies operate using the following four stages:

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Capture: A physical or behavioural sample is captured by the system during Enrollment and also in identification or verification process.

Extraction: unique data is extracted from the sample and a template is created.

Comparison: the template is then compared with a new sample.

Match/non-match: the system decides if the features extracted from the new Samples are a match or a non match.

Implementation

The implementation of face recognition technology includes the following four stages:

Image acquisition

Image processing

Distinctive characteristic location

Template creation

Template matching

How Facial Recognition System Works:

- Facial recognition software is based on the ability to first recognize faces, which is a technological feat in itself. If you look at the mirror, you can see that your face has certain distinguishable landmarks. These are the peaks and valleys that make up the different facial features.

- VISIONICS defines these landmarks as nodal points. There are about 80 nodal points on a human face.

- **Contd..**

- Here are few nodal points that are measured by the software.

- 1. distance between the eyes

- 2. width of the nose

- 3. depth of the eye socket

- 4. cheekbones

- 5. jaw line

- 6. chin

Strengths

- It has the ability to leverage existing image acquisition equipment.
- It can search against static images such as driver's license photographs.
- It is the only biometric able to operate without user cooperation.

Weaknesses

- Changes in acquisition environment reduce matching accuracy.
- Changes in physiological characteristics reduce matching accuracy.
- It has the potential for privacy abuse due to noncooperative enrollment and identification capabilities.

Applications

- Security/Counterterrorism. Access control, comparing surveillance images to Know terrorist.
- Day Care: Verify identity of individuals picking up the children.
- Residential Security: approaching personnel Alert homeowners of
- Voter verification: Where eligible politicians are required to verify their identity during a voting process this is intended to stop voting where the vote may not go as expected.
- Banking using ATM: The software is able to quickly verify a customer's face.

Conclusion

- Factors such as environmental changes and mild changes in appearance impact the technology to a greater degree than many expect.

- For implementations where the biometric system must verify and identify users reliably over time, facial scan can be a very difficult, but not impossible, technology to implement successfully.

THANK YOU