# **(FACE RECOGNITION SYSTEM) Project SRS for functional requirement**

1**. Introduction**

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the functional and non-functional requirements for the Face Recognition System in accordance with IEEE standards. This document serves as a reference for system developers, testers, and stakeholders.

1.2 Scope

The Face Recognition System is designed to provide reliable user identification and authentication through the use of facial recognition technology. This system will allow users to register, log in, and access authorized services based on facial recognition.

2. **Overall Description**

2.1 Product Perspective

Face Recognition System, the product perspective describes how the system fits into the larger environment, its interactions with other systems, and its dependencies. Below is an overview of the product perspective for a Face Recognition System:

2.2 Product Functions

A Face Recognition System (FRS) serves various functions that are critical for its operation. These functions enable the system to capture, process, and identify faces. Below are the key product functions of a Face Recognition System:

• **Face Detection**

• **Image Capture:**

• **Face Feature Extraction**

• **Face Recognition:**

• **User Registration**

• **Authentication**

• **Access Control**

3**. Functional Requirements**

Below are some common functional requirements for an FRS:

3.1 **User Registration:**

3.1. The system must allow users to register their faces, capturing and storing their facial features and associating them with their identities.

3.1.2 Users should be able to provide additional information during registration, such as their names, user IDs, and contact details.

3.2 **Face Detection:**

**3.2.1** The FRS must detect and locate faces within images or video frames, even in varying lighting conditions.

3.2.2 It should identify facial features, such as eyes, nose, and mouth, to accurately distinguish faces from other objects.

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3.3 **Face Feature Extraction:**

**3.3.1** The system should extract distinctive facial features from the detected faces, including the shape of the face, the distance between facial landmarks, and other relevant data.

3.4 **Face Recognition**

3.4.1 The core function of the system is to recognize and identify individuals based on the extracted facial features..

3.4.2 It should compare the facial features of the presented face with those stored in a database of known individuals.

3.5 **Authentication:**

3.5.1 The FRS should authenticate users by comparing the presented face with registered facial features.

3.5.2 Successful authentication should grant access to authorized services or areas.

3.6 **User Management:**

3.6.1 Administrators must be able to manage user accounts, including adding, modifying, and deactivating them.

3.6.2 User data and facial feature databases should be maintainable and updatable.

3.7 **Logging and Reporting:**

**3.7.1** The system must maintain logs of authentication attempts, including successful and unsuccessful ones.

3.7.2 Reporting capabilities should be provided for administrators to monitor system usage and security.

4**. Non-Functional Requirements**

4.1 **Accuracy**

4.1.1The system should have a high level of accuracy in recognizing faces, with a low rate of false positives and false negatives. The acceptable error rate should be specified.

4.2 **Speed and Performance:**

4.2.1 The system should perform face recognition quickly, with minimal latency. It should be able to process a large number of face recognition requests within an acceptable time frame.

4.3 **Scalability**

4.3.1The system should be able to scale to accommodate a growing number of users and face recognition requests. It should handle increased loads without a significant decrease in performance.

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4.4 **Security**

4.4.1 The system should have robust security measures to protect against unauthorized access and misuse. This may include encryption of stored data and secure transmission of data.

5. **Other Requirements**

5.1 **Enrollment**

5.1.1The system should allow users to enroll their faces by capturing and storing facial biometric data in a database..

5.2 **Authentication**

5.2.1 The system should authenticate users by comparing their presented facial features with the enrolled data to verify their identity.

Conclusion

A face recognition system is a powerful and versatile technology that offers a wide range of applications, from enhancing security to improving user convenience. It relies on both functional and non-functional requirements to ensure its effectiveness, security, and ethical use.