

FACE RECOGNITION: A NEW WAY TO MANAGE YOUR PERSONAL DATA

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Abstract

Facial recognition technology is becoming more and more integrated into our daily lives, offering a new method for handling personal data. This essay examines how this technology has developed from a theoretical idea to a useful instrument in fields like security and attendance control. By using either facial recognition or identifying numbers on an inventive platform that meets a variety of user needs across devices and emphasizes efficiency and simplicity, our proposed system seeks to streamline the process of obtaining and updating personal data. The C# programming language is used to describe the development process, which includes elements like document requests, registration, and automated administrative activities that lower bureaucratic obstacles often associated with traditional documentation processes and increase accessibility. Lastly, we look at the likelihood that this new technology will be widely used in the future for improved security surveillance in a variety of industries. In conclusion, our work is a prime example of how user-centric design and technical innovation may be coupled to advance personal data management practices toward more efficient, efficacy-focused operations.

Keywords: face, recognition, personal, data, personal data, face recognition

1. Introduction

With the realization of futuristic ideas portrayed in films, facial recognition technology has emerged as a key instrument in the realm of technical breakthroughs. It imagines a time when identity cards made of our faces may be used for a plethora of purposes, such as helping forensic investigators and visually challenged people as well as unlocking phones. (Westbrook 2020)

This innovative feature sums up the advancements of our millenium quite well, along with drones, AI, and IoT. Due to its real-time identification capabilities, which enable a variety of feasible uses beyond mere surveillance purposes, facial recognition has gained paramount significance over other security measures like voice identification, fingerprints, or eye detection in biometric authentication for attendance management and access control systems in recent years. (Alhanaee, et al. n.d.) (Future of facial recognition technology n.d.)

This project's primary objective is to use facial recognition technology to develop a personal data management system. Facial identification technology is used by many systems, including location-based and fingerprint-scanner-equipped attendance systems as well as RFID tags and readers. The proxy entry problems that may result from using these methods for attendance tracking can be resolved by using facial recognition instead of them. While an RFID reader offers faster processing at a higher susceptibility to proxies, face scanning authenticates entries extremely well and poses no real risk of cheating. (Alhanaee, et al. n.d.) (Opinion 02/2012 on facial recognition in online and mobile services 2012)

1.1. Motivation: The absence of a comprehensive system for managing personal data underscores the need to propose a solution that streamlines access to data and simplifies the process of requesting documents. This motivation stems from the recognition that leveraging

facial recognition technology or personal identification numbers could significantly enhance the efficiency and convenience of data management and documentation requests. (Mansoor, Sadineni and Heena Kauser 2021)

1.2. Problem Statement: Extended waiting periods for documentation requests pose significant challenges for both individuals and organizations. An expedited and simplified payment and submission process for these kinds of requests is the goal of a suggested system designed to address this. The system's goal is to save time and resources while minimizing the environmental harm that comes with paper consumption by enabling people to access these services remotely from any location. (Mansoor, Sadineni and Heena Kauser 2021)

1.3. Methodology: Our study's main objective is to find out how people handle their documents. We achieve this by carefully examining a wide range of academic sources and offering our own perspectives. Two key components of our methodology are deconstruction via analysis techniques and integration via synthesis procedures. Our method is breaking complex issues down into smaller, more digestible pieces in order to fully understand their complex nature before putting them back together to provide a comprehensive solution for the efficient management of one's personal documents. Ultimately, we aim for ease of use and accessibility that overcomes any likely impediments toward reaching excellent record-keeping habits. (Mansoor, Sadineni and Heena Kauser 2021)

2. Literature Review

After conducting a thorough review of the available literature, several scholarly works have been discovered that are relevant to the management of personal data through facial recognition technology. Notably, numerous studies offer valuable insights into this field.

Research conducted by K. Alhanaee, M. Alhamadia, N. Almenhalia, and M. Shatnawia outlines the usage of deep learning convolutional neural networks in a facial recognition attendance system. Their technique integrates the transfer learning method with three pre-existing convolutional neural networks to deliver impressive levels of forecasting precision and training efficiency (Alhanaee, et al. n.d.).

Potadar, Fale, Kothawade, and Padale deliberate on the difficulties inherent in conventional attendance monitoring techniques while suggesting the adoption of smart and accredited systems. They emphasize the potency of biometric technologies such as facial recognition for practical use by proposing a mechanism whereby students' unique identification details are linked with their facial features to track attendance efficiently. (Potadar, et al. 2021)

Kaneez L. Bhatti, Laraib Mughal, Faheem Y. Khuhawar, and Sheeraz A. Memon address the limitations of conventional attendance-taking approaches that enable fraudulent proxy recordings in their research work. To overcome this issue, they propose exploiting facial recognition technology to automate attendance monitoring using personalized daily logs created by administrators. Incorporating real-time image capture and analysis features enables reliable recording of attendees with corresponding identification information and timestamps. (Laila Bhatti, et al. 2018)

Westbrook offers key understandings of the core principles of facial recognition technology by shedding light on its automatic identification mechanism that operates based on distinct facial characteristics. The capacity of this technology to connect captured data with pre-existing information highlights its potential value in a range of uses. (Westbrook 2020)

S. Mansoor, G. Sadineni, and Shaik Heena Kauser suggest the implementation of a student attendance control system that utilizes facial recognition technology. (Mansoor, Sadineni and Heena Kauser 2021)

In addition to this, recent literature emphasizes the quick progress and improved preciseness of facial recognition technology. Moreover, insights from G. Desjardins illuminate how personal data has become a valuable asset in the digital era and stress on how internet advancement affects data management practices. (Desjardins 2020)

Taking into consideration these studies, the suggested approach endeavors to provide an uncomplicated, speedy and cost-effective answer to handle personal information as well as streamline requests for document preparation. This sets it apart from the current techniques available.

3. Platform Design and Development

We suggest a system that utilizes facial recognition technology to simplify the management of personal data and documentation, acknowledging its crucial significance.

In this paper, a comprehensive solution is proposed through the outlined system aiming to enable users in accessing their documentation seamlessly as illustrated in Figure 1.

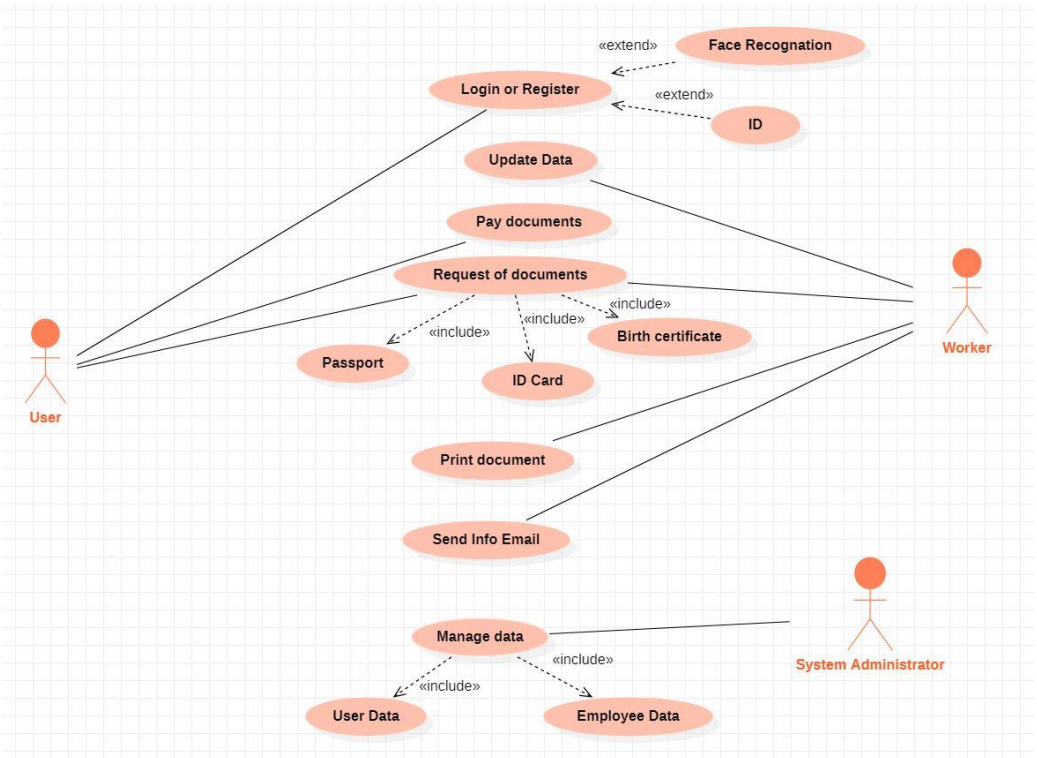


Figure 1. Use Case Diagram

As depicted in Figure 1, the platform has been meticulously developed with a user-centric approach, aiming to minimize user tasks. Users are only required to perform two essential actions: submitting a documentation request and making the necessary payment. Upon submission, the institution's employee processes the request, updates the data as needed, prints the documentation and subsequently sends an email notification informing the user that their documentation is ready for collection.

Users encounter minimal inconvenience in this streamlined process, as the institution efficiently handles the documentation workflow. Furthermore, a system administrator supervises data management to guarantee smooth operation and data integrity during the entire procedure.

4. Programming Platforms and Tools

The system proposed in this paper encompasses three primary activities: data management, documentation request processing, and documentation printing. The C# programming language is utilized to bring about these functions. The interface of the system has been meticulously crafted with cross-device responsiveness in mind, catering to PCs, mobile phones, and tablets alike regardless of the web browser in use.

At the core of the system's functionality lies the registration and user login process, facilitated through either facial recognition technology or a personalized identification number (Personal No and Password) in Figure2. This authentication mechanism grants users' seamless access to the system, enabling them to initiate documentation requests and interact with various features effortlessly.

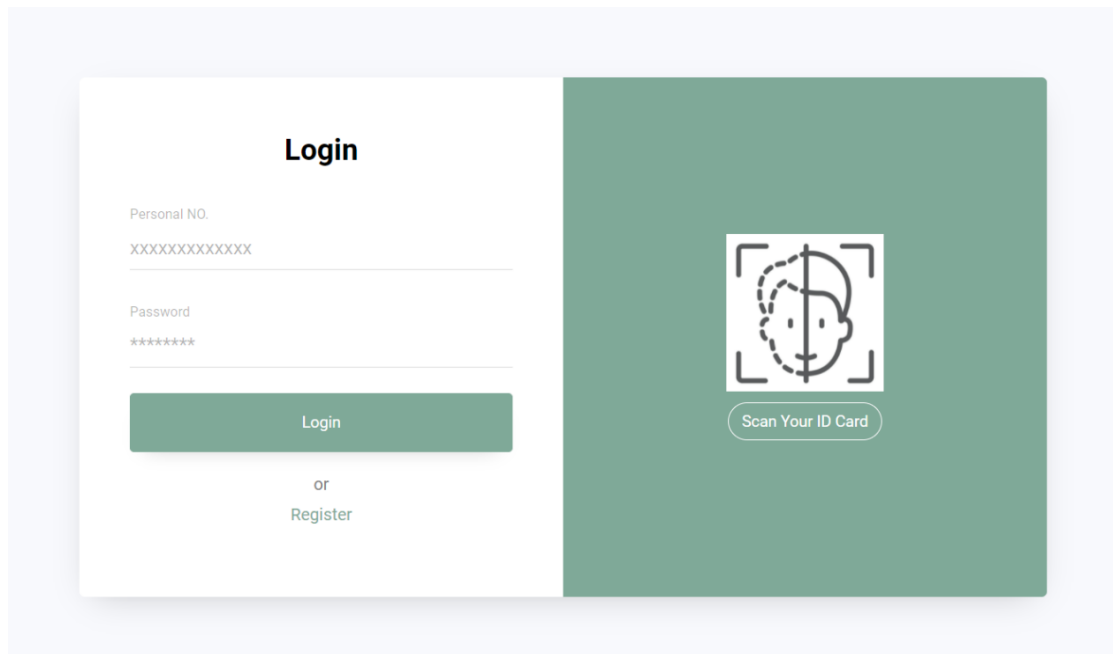


Figure 2. Login Page

Once the user clicks on the "Login" button or uses the "ID Face" feature, their profile will immediately appear. In addition to any outstanding document requests and payment status, personal information will also be displayed. This interface makes it easy for users to edit their data seamlessly as depicted in Figure 3 and Figure 4.

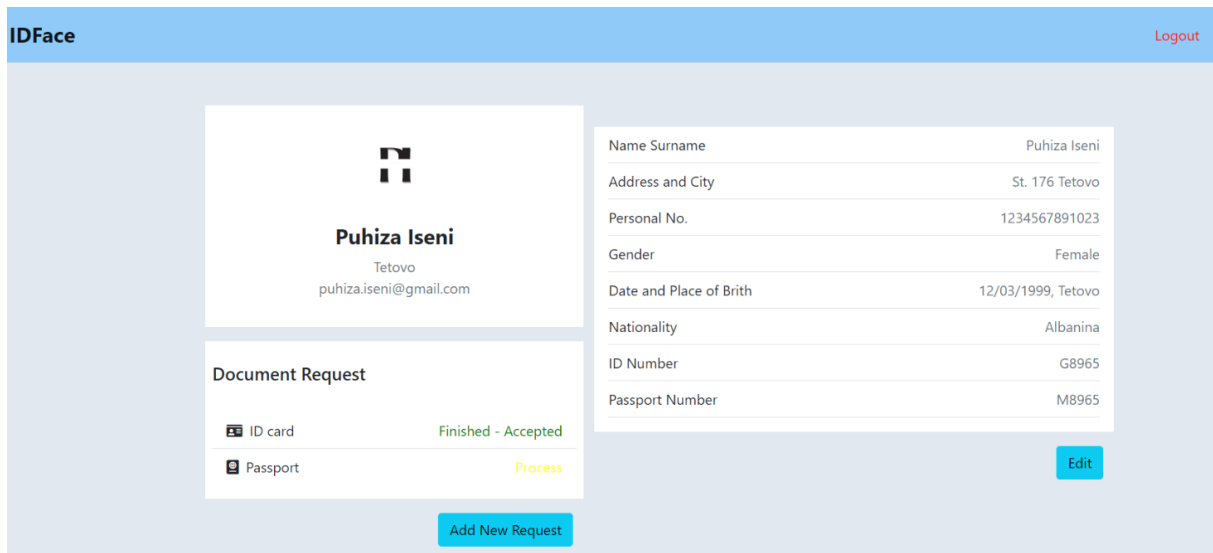


Figure 3. Profile Page

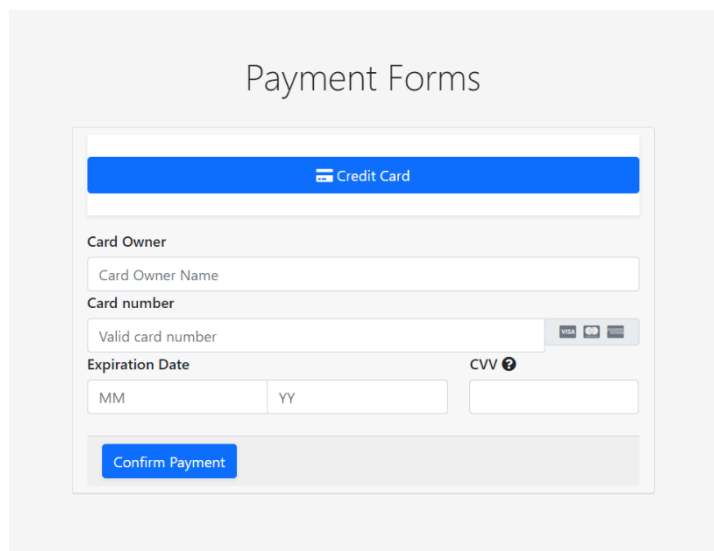


Figure 4. Pay Page

In the other hand the personnel within the institution are responsible for receiving documents, updating data, printing and sending email notifications to inform users that their documentation is ready for collection.

The screenshot shows a web interface titled "FaceID". At the top right, there are navigation icons: a home icon, a plus sign, a refresh icon, and a share icon. Below the header is a search bar with the placeholder text "Search..." and a blue "Search" button with a magnifying glass icon. The main content area contains a table with the following data:

Name	Surname	Address	Personal No.	Gender	Documents	
Puhiza	Isemi	St.176 1/10	123456789	F	ID card	Edit Delete Print
Altina	Isemi	St. 176 1/10	123456789	F	ID card	Edit Delete Print
Ermira	Selimi	St. 145	123456789	F	Passport	Edit Delete Print
Djellza	Osmani	St. 147	123456789	F	ID card	Edit Delete Print
Semina	Nesimi	St. 112 2/12	123456789	F	Birth Certificate	Edit Delete Print
Lirije	Jaija	St. 101	123456789	F	Passport	Edit Delete Print
			12			

Figure 5. Worker Page

5. Conclusion and Future Work

Predictions indicate that facial recognition technology will have a bright future because of its expected significant growth and profitability over time. This state-of-the-art system could have a big impact on the security and surveillance sectors in businesses, government organizations, and educational institutions. Experts in the field also predict that retailers and financial institutions will use this cutting-edge technology because of its capacity to quickly identify fraudulent activity, particularly in digital debit and credit card transactions, when conventional password-based authentication techniques fall short due to inherent limitations. Face recognition comes out as a great workaround because it can get over these barriers completely. (Future of facial recognition technology n.d.)

Beyond traditional sectors, facial recognition technology could be useful for integrating robots into unorthodox fields. In a few years, robotic helpers may come in handy for handling difficult or unrealistic tasks that humans are unable to complete. The new structure that this article suggests makes it simple to maintain and retrieve personal data. Through the use of a code or facial recognition, the system ensures secure verification. Its carefully crafted, simplified interface expedites platform document payment processes without compromising user-friendliness.

The adaptability of the suggested system is evident in its user-friendly design, offering a bright future for conveniently accessing personal papers and managing data across numerous apps. As facial recognition technology develops further, its practical applications will increase while optimizing efficiency.

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