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MedVision: Facial ID Health System

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1.Abstract

MedVision's Facial ID Health System is a novel healthcare solution that uses facial recognition and artificial intelligence to improve patient identification and health record management. It provides a secure and convenient check-in process, integrates with electronic health record systems, and protects patient data and privacy. It is suitable for healthcare facilities of all sizes and aims to enhance patient safety and care. The system leverages cutting-edge technology to accurately identify patients upon arrival, eliminate manual registration, minimize human error, ensure instant access to patient records, enable informed decision-making, personalize care, safeguard sensitive data, prevent unauthorized access, and protect patient privacy. MedVision represents a significant advancement in healthcare technology and contributes to a more efficient and patient-centric healthcare experience.

2. Introduction

Patient identification and health record management are crucial aspects of healthcare delivery, as they affect the accuracy, safety, and quality of patient care. However, traditional methods of identifying patients and managing their records, such as ID cards, passwords, or biometrics, are often prone to errors, fraud, or inefficiency, compromising patient safety and data security. Moreover, the growing volume and complexity of health data require effective integration and interoperability of electronic health record systems, which are often fragmented and incompatible across different healthcare facilities. These issues pose significant challenges to the healthcare industry, which is undergoing a rapid transformation due to the emergence of new technologies and the increasing demand for value-based care.

To address these challenges, MedVision, a company that specializes in healthcare administration software, has developed a novel healthcare solution that leverages facial recognition technology and artificial intelligence to revolutionize patient identification and health record management. MedVision's Facial ID Health System is a cutting-edge platform that offers a secure, convenient, and seamless way of verifying patient identity,

accessing patient records, and protecting patient data, enhancing patient safety and care quality. It also integrates with electronic health record systems, enabling real-time data exchange and analysis, facilitating informed decision-making and personalized care. Furthermore, it complies with all relevant data protection regulations, ensuring patient privacy and consent.

3.Methodology

To integrate the literature review into the system architecture, we will systematically align prior works with the proposed functionalities of MedVision's Facial ID Health System. This involves synthesizing relevant findings from existing literature on facial recognition technology and AI in healthcare. Concurrently, we will conduct a thorough requirements analysis, outlining both functional and non-functional software requirements with a focus on clarity in specifications. This step ensures that the system architecture aligns precisely with the identified needs and standards.

The user flow will be visualized to create a clear representation of the journey from the Login/Sign-up phase to the various features accessible through the Dashboard. This visualization aids in understanding the user experience and ensures that the design is intuitive and user-friendly. Emphasizing key features for farmers is integral to the methodology, ensuring that the system is tailored to meet their specific needs effectively. This step aligns with the overarching goal of providing a solution that truly caters to the healthcare facilities of all sizes. Through iterative refinement, the methodology will continuously evolve based on feedback and insights, ensuring alignment with the project's overarching goals. This adaptive approach guarantees that MedVision's Facial ID Health System remains at the forefront of innovation, meeting the dynamic requirements of the healthcare industry.

3.1. Use Case Diagram

A use case diagram is a type of behavioural UML diagram that depicts the interactions between actors and the system being developed

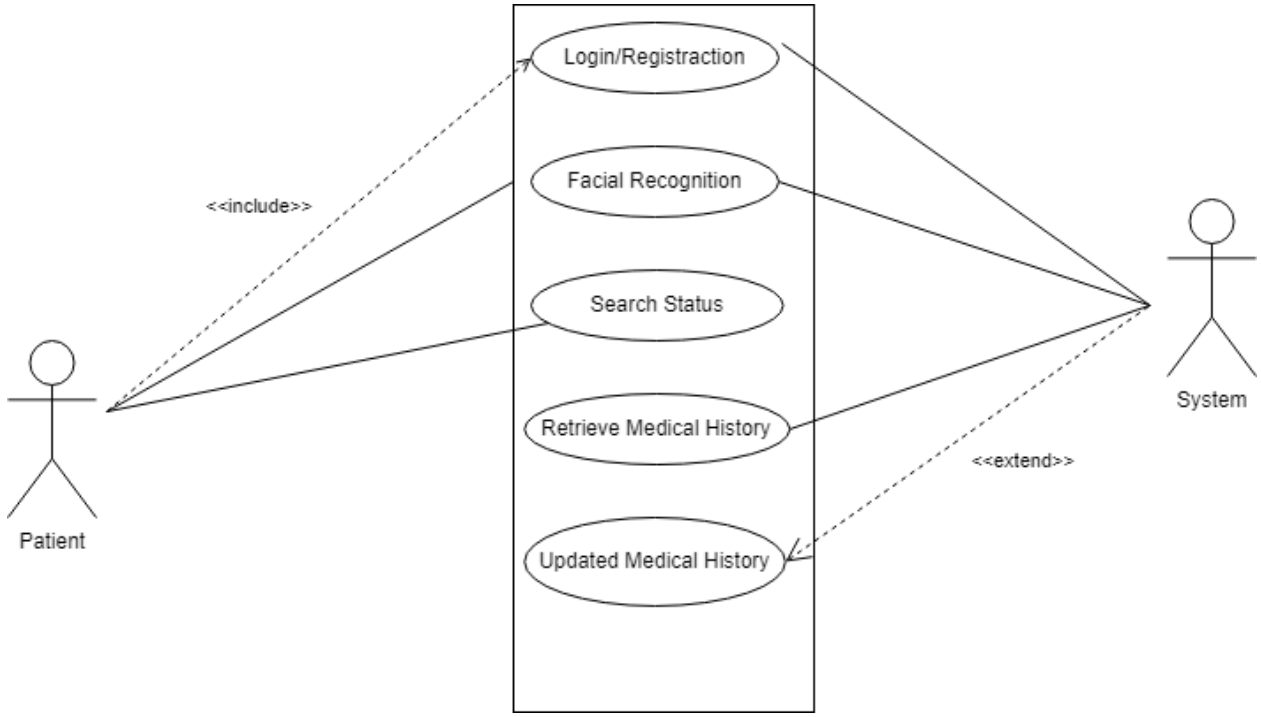

Fig-1.Use case Diagram

3.2 Flow chart

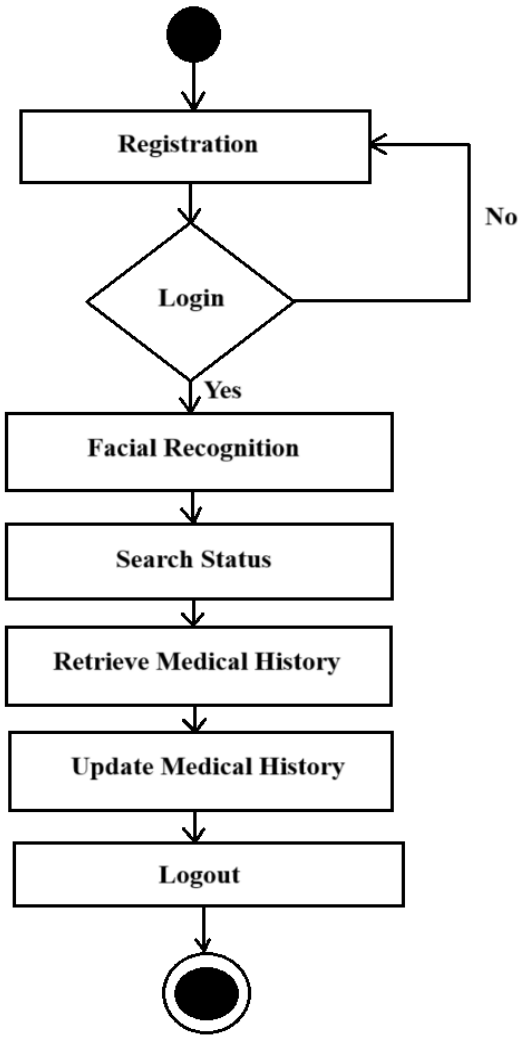

Fig-2. Flow Diagram

4. Existing System

This system focuses on seamlessly reducing the amount of physical record a patient has to carry while visiting a hospital while insuring the integrity, privacy and security of the patient. MedVision uses facial recognition technique to ensure all the security and integrity protocols are abided. The facial data of the patient is recorded by the nurse or say receptionist then it is sead to the server for verification once verification is completed medical history of the patient is retrived from the database. Hashing technique is used to encrypt the data before transmission to ensure security and integrity of the data. Once the data is retrived doctor gets a access point which allows them to view and make changes to the data. Authorized doctors are given credentials like username or password which will be exclusive to each doctor no other person can access the patient's medical records except for the doctor. In case of the doctor leaving the hospital the credentials given to the doctor will be nullified the instance hospital inform the service provivder. If a patient is not recognised by the system then the receptionist will have to create new record for that patient. Receptionist will only be able to add, delete the patient or say if the patient already has an account with the MediVision Technology but in other hospital receptionist will be able to request that data from the server and then the server will retrieve the data after a secured verification of the patient is done.

5. Literature Review

A Contactless Healthcare System with Face Recognition Nowadays, a contactless healthcare system that uses face recognition and pulse rate measurement based on deep learning. The system consists of a GPU and CPU co-design platform that can process face recognition in real-time. The system can identify the person and measure their pulse rate without any physical contact. The system has an average accuracy of 98% for face recognition and a low error rate for pulse rate detection. The system can be applied in various scenarios such as door-access, driving monitor, industry, etc. The paper aims to provide a flexible and comfortable healthcare solution for daily life.

Health Monitoring Approaches towards Face Recognition based System Face recognition is a powerful technique for identifying and verifying people, which has many applications in security and other domains. This study aims to design an automated attendance system based on face recognition and active learning. The

system uses various technologies to ensure reliable and secure attendance tracking. Active learning helps the system adapt to the changes in children's facial features over time.

Facial Recognition And Verification System For Accessing Patient Health Records Facial recognition and verification system for accessing patient health records is a paper that proposes a novel way of using image processing techniques to identify patients and retrieve their medical records from a database. The paper addresses the problem of carrying physical copies of medical reports every time a patient visits a hospital or a clinic, which can be cumbersome and prone to errors. The paper suggests that instead of using a unique identification number, such as an Aadhaar card or a PAN card, to access the patient's health records, a facial recognition system can be used to authenticate the patient's identity and grant access to the relevant data.

Patient Identification using Facial Recognition a novel idea of using facial recognition to identify patients and access their medical records. The paper aims to demonstrate how computer vision can improve the efficiency and accuracy of the healthcare system by replacing paper-based and physical methods of patient identification. The paper proposes a system that uses a universal medical face identification for every patient, which can be used to retrieve their medical history, previous visits, and prescriptions. The paper also discusses the benefits of such a system, such as reducing the time and effort of the medical staff, enhancing the security and privacy of the patient data, and facilitating the communication and coordination among different healthcare providers. The paper claims that facial recognition can potentially revolutionize the way that prescriptions are given to patients and improve the quality of care.

A Facial-Expression Monitoring System for Improved Healthcare in Smart Cities a facial-expression recognition system that can help improve healthcare in smart cities. The system uses a band let transform to decompose a face image into sub-bands, and then applies a weighted, canter symmetric local binary pattern (CS-LBP) to each sub-band block. The CS-LBP histograms of the blocks are concatenated to form a feature vector, which can be optionally reduced by a feature-selection technique. The feature vector is then classified by two classifiers: a Gaussian mixture model (GMM) and a support vector machine (SVM). The scores of the classifiers are combined by weight to produce a confidence score (CS), which determines the type of facial expression. The paper evaluates the system using a large dataset and reports a high accuracy of 99.95%. The paper claims that the system can be useful for monitoring the health status of patients and providing personalized healthcare services in smart cities.

6. Conclusion

In this paper, we have presented MedVision: Facial ID Health System, a novel technology that uses facial recognition and health assessment to provide a non-invasive and quick method for health screening. We have discussed how this system works, what it does, and why it is different from other solutions. We have also highlighted the benefits and limitations of this system, as well as the ethical and privacy issues that need to be addressed. We have concluded that this system has the potential to transform health screening and monitoring, making it more accessible and convenient for users, but also requires careful attention to ethical and privacy considerations in its development and implementation. We have suggested some possible directions for future research and development, such as improving the accuracy and reliability of the system, expanding the range of health conditions that can be detected, and exploring the user acceptance and satisfaction of the system. We hope that this paper has provided a comprehensive overview of MedVision: Facial ID Health System, and has stimulated further interest and discussion on this topic.

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