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Blood Group Detection using Fingerprint

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I.ABSTRACT

This Project Inspects obtaining Blood Group with using Fingerprint Impressions. As in usually established methods of detecting Blood Group requires blood samples lab analysis and manpower with extensive needs, this technology works as great alternative for it.

This system acquires fingerprint using fingerprint scanner. The captured fingerprint goes through various processes & necessary features are extracted using Machine Learning Algorithms to compare with existing data.

The primary goal of this project is to investigate whether fingerprint characteristics, such as ridge patterns, minutiae points, and overall fingerprint types, can be linked to an individual's blood group. This project involved collecting fingerprint images from multiple individuals along with their corresponding blood group information. The project aims to create user friendly and reliable system for blood group detection.

II. INTRODUCTION

This project explores the possibility of using scanned fingerprint images to detect blood groups. Using a scanned fingerprint, we can know our blood type. Fingerprints are unique to each person and stay the same throughout their life. Scientists are now exploring ways to connect the fingerprint pattern with blood type using advanced technology. In this, there is no need to draw blood, no contact with blood.

Normally, finding out someone's blood type requires a blood test, which can be slow and uncomfortable to draw blood. But if fingerprints can reveal blood type, it would be a much faster, non-invasive, painless process and hygienic as well, as there is no chance of infection.

This innovative approach holds great promise for improving medical diagnostics, especially in emergency situations, blood donation scenarios, and remote areas

where traditional methods may not be immediately available.

Fingerprint patterns can be classified into four main types: loops, whorls, arches, and mixed/composite types. Loops are the most common, accounting for about 65% of all fingerprints. Whorls, the second most common type, make up around 20-25%, while arches and composite patterns account for the remaining percentage. These patterns are unique to individuals and are used to differentiate one person from another.

III. LITERATURE SURVEY

This study presents a reliable towards fingerprint spotting and recognition using detailed characteristics. This procedure is organized into several stages, beginning with pre-processing to eliminate unnecessary elements and enhance the clarity of the fingerprint. In the next stage, feature extraction is performed using the content extractor algorithm, with a particular emphasis on ridge end bifurcations and finishing. Our own tasks come to an end with a be equal to phase, consist of two parts: the substantiation method take into employment (1: N) matching, and the confirmation process, called as (1:1) matching. In this approach, a comprehensive matching technique based on the Euclidean distance metric used for correlation outcome among two thumbprint images.[1]

In this project using fingerprint we can identify the blood type using the biometric identification. The biometric identification is highly reliable and makes it ideal for extensive application. This blood group detection project presents an imaginative method for determining blood groups by using fingerprint analysis. The

fingerprint is unique of each person so that you can lock your important files photos etc. with your fingerprint just like that using different machine techniques we can detect the blood type using scan biometric fingerprint. The system proposes that using multiple linear regression with ordinary least square the blood type detect accuracy is 62% in future research we should try using a bigger sample size to improve the accuracy and provide the much more fingerprint features to make the model is stronger.[2]

The unique features of finger are captured using different types of sensing elements, including crests, lumpy and points. The method relies on 3 types of Interpretations: routing, BGP (Binary Gradient Pattern), and Gabor Hog. Directional indications specify the orientation prediction on the fingertip. At the same time, the BGP and Gabor Hog descriptors provide a representation of fingerprints by capturing diverse local ridge patterns and directional data surrounding particular points. There are four distinct types of whorl patterns: plain (characterized by concentric circles), central pocket loop (a loop culminating in a whorl), and double loop (comprising two loops that create an S-shaped configuration). The findings indicated a favorable correlation between fingerprint patterns and AGO blood groups. With the progression of fingerprint technology towards greater precision, development of expedited matching algorithms has rendered automatic identification an essential asset in the identification process.[3]

Fingerprints give a valuable way to identify blood groups. This study examines the feasibility of utilizing fingerprint patterns to identify blood types. Looks into human related diseases such as anemia, leukemia and blood cancers. The study focuses on discovering any connection between fingerprint characteristics and blood types. This project mainly focuses on revealing potential relation between health conditions that commonly occur within the age. Type I loop imprint that turns back on themselves to make a loop shape. Loops are classified into radial loops (denoting toward the radial bone or thumb) and ulnar loops (denoting toward the ulna bone), composing around 60 percent of fingerprint patterns types. The individual characteristics of fingerprints are formed by different types of features like crests, lumpy and points. The project is dependent on three types of Interpretations directional indications that define the guidance project in the front of the finger. The output represents a strong connection between fingerprints and AGO Blood types. As fingerprint technology progresses and more precise, faster matching algorithms are developed, impulsive identification has become a significant asset in the recognition process continually checked. Type III arch makes a wave-like pattern and includes plain arches, and tented arches. Arches make up approximately 5% of all fingerprint patterns.[4]

IV. PROPOSED APPROACH

This system allows users to enter the system by going through registration and scanning their fingerprint. After fingerprint scanning, the system provides an output. Administrators have full access to the dashboard for managing user information. Doctors use the system to access patients' blood groups and other details, which is helpful in medical emergencies. Users can easily detect their blood group using this system.

***Figure 1**- System Design*

The system works in the following manner:

Home: The users go through the registration phase to login phase, and registered users can directly go to the login page.

Registration/Login: New users need to proceed with the registration, whereas registered users can log in to the system.

Enter User Details: Users enter their personal details for record.

Fingerprint Extraction: The fingerprint image is extracted by the scanner.

Image Conversion: The scanned image undergoes certain image conversion methods, like grayscale conversion & image processing methods.

Image Comparison: The extracted features are compared with stored data from the database.

Database Matching: The respective blood group is fetched if a match is found. The system informs the user if no match is found.

Display Result: The detected blood group is displayed as is

displayed as a result.

V. CONCLUSION

The Blood Group Detection Using point and Scanner design presents a new approach to blood group identification by using biometric data, specifically fingerprints. By integrating AI algorithms and CNN models, This design demonstrates a new approach to blood group discovery using point scanning technology. By assaying point patterns with a scanner, it offers anon-invasive, quick, and cost-effective volition to traditional blood sample- grounded styles. This approach minimizes discomfort, eliminates the threat of contamination, provides immediate outcomes, rendering it suitable for operations.

VI. REFERENCES

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