ABSTRACT

Biometric systems are accepted all over the world and are already in use. The conventional fingerprint technology has a very serious issue of latent fingerprint and has low in hygiene factor since it is a contact based system. For these very same reasons an ideal new solution of touchless fingerprint identification is introduced. This new system uses novel fingerprint minutiae matching algorithms and uses high definition digital cameras for capturing input image. Here we have presented a brief review of recent trends in touchless fingerprint identification using various techniques and their results were presented in tables to differentiate between different Strategies and their outcome.

INTRODUCTION

Fingerprints are biological traits that are unique for each and every individual human. The main peculiarities of fingerprints are they doesn't change over time. Fingerprint is a ridge patterns that are formed in the upper skin layer of our fingers. From the early 1892 to onwards we are using fingerprint for identification.

These conventional methods of fingerprint identification are done by placing out finger on the sensors. Due to difference in pressure applied by the each individuals at each time are different, sometimes the prints gets disoriented or smudged. This happens even for same person thus creating a probability for false accusation of fingerprints. Thereby creating a chance for forgery.

As we spoke of our present world where the rapid spreading of covid-19 corona virus, everyone is well aware of hygiene and it has become an important factor in our society. So apart from these obstacles of false acquisition and maintaining hygiene, a various solution of touchless fingerprint identification has been introduced here in this paper. By using various machine learning and image processing techniques a touchless fingerprint system is defined.

A High definition digital camera is used for capturing the image of finger and by using machine learning and image processing algorithms features are extracted from the image and made to use for identification. When a finger is placed in front of a camera an object detection algorithm will capture the image if the finger is

present. From there the image is subjected to a series of image processing and matching stages. In the matching stage the confidence level of our processed image is matched with our previous database which is contact based finger prints. If the confidence level between these matching stages is greater than threshold value then we will conclude the fingerprint it is matched.