Missing Child Identification using HOG and KNN

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Abstract: *Every year, many number of missing children are reported in India. With the aid of facial recognition, our project aims an application using Machine Learning technology to locate missing child reported among many children images that are available. A shared platform allows users to post pictures of suspicious children along with descriptions and landmarks. The newly entered image is categorized and automatically compared to the repository's missing-child photos. The database is searched for the image that most closely matches the user-input child image and display the results to the users for further processing. In order to do this, the user-posted photograph and the provided database of missing child images will be used to train a machine learning model to accurately identify the missing child. In this system, for Face recognition process, we are using HOG (Histogram of Oriented Gradients) which is a standard technique for face feature extraction. The HOG features are extracted for the test image and also for the training images and finally for classification we are using KNN algorithm which effectively recognize the face Labels from the input child image.*

Keywords: HOG, KNN, Machine Learning, Face Recognition, CNN, LBPH, PCA, SURF, HAARIS,Database

1. Introduction

Nowadays facial identification and facial recognition has been used as one of the biometric features. Facial Recognition is performed by extracting all the facial features of a person. No two persons can have the similar facial features. Based on this perspective, we are creating a system that may be used to identify missing children quickly. As we know India is ranked second as most populated world's country. There are many children present here. Kidnapping of children occurs for a number of reasons, including human trafficking, forced labor, unlawful organ transplantation, the adoption industry, and unauthorized medical testing. Most of the children remain unfound.

According to the data from the National Crime Records Bureau, Children disappear in India for every eight minutes, and 40% of them are never discovered. There are many missing child cases pending that are yet to be resolved. For a variety of reasons children who are missing in one area could turn up in another area. In this missing child identification project, we are performing the facial identification of the missing child by calculating the facial features from the given input image and comparing it with the images of the missing child database. This helps the authority people to search the missing child as fast as possible. It also makes easier for the police to find the missing child in any region.

2. Literature Review

In this paper "Missing Child Identification using LBPH algorithm", a system for missing child identification that combines face feature extraction using deep learning with matching using the LBPH algorithm. Features of the face are extracted by using the LBPH algorithm. Here, features of Iris of the missing child are extracted using Gabor filter algorithm. Iris recognition is performed to identify the persons based on their iris. For facial identification they have developed a model which in the backend machine learning