iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** III **Month of publication:** March 2018

DOI: http://doi.org/10.22214/ijraset.2018.3218

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue III, March 2018- Available at www.ijraset.com

Face Recognition Using Cnn

Sohail Sheikh[1], Shubham Shendre[2], Fauziya Anjum[3], Mishquat Qureshi[4], Suyash Waghchoure[5], Prof. Manish Assudani[6]
[1, 2, 3, 4, 5] *Department Of Computer Science & Engineering, Rashtrasant Tukroji Maharaj Nagpur University, Nagpur, Maharashtra, India*
[6] *Department Of Computer Science & Engineering, Rashtrasant Tukroji Maharaj Nagpur University, Nagpur, Maharashtra, India*

Abstract: ***Face (facial) recognition is the identification of humans by the unique characteristics of their Faces. Face recognition technology is the least intrusive and fastest bio-metric technology. Face detection and tracking have been an important and active research field because it offered many applications especially in video surveillance, biometrics or video coding the goal of this project was to implement face recognition Technology to help human trafficking victim on a static photograph and real-time surveillance system to trace trafficked victims by their faces. The face recognition was determined by calculating different aspects of faces. The face detection algorithm involved color-based skin segmentation and image filtering. An open source software program library called TensorFlow is used to implement face recognition Technology. The previous experimental results have proven the accuracy and effectiveness of API over real-time systems and even under the varying condition of light facial poses and skin color. All calculation of hardware implementation was done in real time with the minimal computational effort, thus suitable for power-limited applications. Trafficking in persons is a serious crime and a grave violation of human rights. Every year, thousands of men, women and children fall into the hands of traffickers, in their own countries and abroad. Almost every country in the world is affected by trafficking, whether as a country of origin, transit or destination for victims. The basic purpose begins to identify the face uploaded (sighted person) on the server and drive information stored (lost person) in the database. It involves two main steps. First to classify the image of (lost person) and store them in the database or cloud and the second step to compare it with the uploaded images (sighted person) and returning the data related to that image. Various API libraries that can be used for face detection such as Google's inception, facenet, and Open CV.***
Keywords: Face Recognition, Tensor Flow, Inception, Facenet, Open C

I. INTRODUCTION

Face Recognition (FR) is one of the domain from Computer Vision (CV) that has reaped more interest in long. The practical applications for it are many, ranging from biometrical security, to automatically tagging your friend's pictures, and much more. Because of the possibilities, many companies and research centers have been working on it.

A. The Face Recognition Problem

This problem is also a difficult one, and it has not been until recent years that quality results are being obtained. In fact, this problem is usually split into different sub-problems to make it easier to work with, mainly face detection in an image, followed by the face recognition itself.

There are also other tasks that can be performed in-between, such as formalizing faces or extracting additional features from them. Through the years, many algorithms and techniques have been used, such as eigenfaces or Active Shape models. However, the one that is currently mostly used, and providing the best results, consists in using Deep Learning (DL), especially the Convolutional Neural Networks (CNN). These methods are currently obtaining high-quality results, so, after reviewing the current state of the art, we decided to focus this project on them.

B. Motivation

This project was developed for the company NAGSTUD TECHNOLOGIES LLP. Their goal is to create an AI enriched system oriented to fight against human trafficking. As such, one of their main departments is devoted to developing such AI technology. This project was born there, as they wanted to recognize faces in uncontrolled environments.

The uses for such a project are many, but there are some that are especially most relevant for NAGSTUD TECHNOLOGIES LLP. First, to automatically recognize a sighted person in uploaded pictures to match with the database of the lost and missing.

©IJRASET (UGC Approved Journal): All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue III, March 2018- Available at www.ijraset.com

II. LITERATURE REVIEW

Human trafficking is a form of modern slavery—a multi-billion-dollar criminal industry that denies freedom to 20.9 million people around the world. And no matter where you live, chances are it's happening nearby. From the girl forced into prostitution at a truck stop, to the man discovered in a restaurant kitchen, stripped of his passport and held against his will. All trafficking victims share one essential experience: the loss of freedom.

The existing system which handles and fight against the human trafficking is not a better approach to solve the problem in the era. The existing the system mainly in India only acquire and have the database of the missing persons including child-woman man all do the database is itself not accurate and complete. The database is only used to track the record of missing and found a person in India. Moreover, all the other work related to tracing the missing persons and send them to their right place is manual, the volunteers and the police require lots of manual work to trace the victims around the country. Existing system also lacks in maintaining the privacy of the details of missing and sighted person. Existing system also lacks in features which can eliminate all the manual work for the users and the volunteers as well as for the policeman.

KhoyaPaya is a citizen centric portal for the missing and vulnerable children, where any citizen can register with the portal and provide information about a missing or sighted child, without waiting to complete the legal formalities. The information supplied by the citizen would be made available for public view after quick moderation, thereby saving the valuable time. The citizen can further do searching of the database of the children by matching the attributes of the lost/sighted child. The mobile app facilitates the user in providing details of sighted children. Facetagr is another which is closed portal.

III. PROPOSED PLAN

A. Problem Definition

Long procedure: -If any person has to help, then he has to go through long process Over the portal of feeding the information which is not known in many cases for this reason he may not help to get rid of this clutter, this is one of the main reason that people do not want to fight against human trafficking and he rarely bother about this.

Lack of privacy: - Privacy is the big issue in the system that is provided by the government everyone here can find out the details about the missing person. And a bandit can miss used the details that are provided in portal according to him.

Lack of technology: -Technology of the present system is not up-to-date the present system is only intended to provide a database of the missing person and that only generate the profile to trace the victim by the police or volunteers.

Manual process: - Manual work is still present over the system of suspecting the sighted person with the missing ones.

Closed application: - The present system artificial intelligence is not provided to the common man for the use. The issue of usability arises with the present system. The requirement of proof to help the victim or the sighted person. No use of unmatched cases that can be used for further investigation. Compare either with the database present over the social networking site or over the police department or at the system itself this makes the search process incomplete.

B. Proposed System

Human Tracker is a citizen-centric portal for the missing and vulnerable person, where any one can register the missing report with details and photos of missing person. It provides the platform where any citizen or NGOs volunteers can provide information about a missing or sighted child, without waiting to complete the legal formalities. Use artificial intelligence to search and recognize the sighted person with the missing person using the face recognition technology using google API library tensor flow. Message the complainant about the details of search or sighted person if found. If the sighted person is not found or matched, then respected details will get stored in the database for further use.

TensorFlow computations are expressed as state full dataflow graphs. The name TensorFlow derives from the operations that such neural networks perform on multidimensional data arrays. These arrays are referred to as "tensors". In June 2016, Dean stated that 1,500 repositories on GitHub mentioned TensorFlow, of which only 5 were from Google.

Systems based on Face Recognition (FR) have roused interest for the last decade, and in particular, the field of security research is going to spread the employment of such technology in many contexts . This is due to many reasons: at first, the face is the body part generally always exposed and it contains a large number of identifying features that make it suitable for recognition. In addition, compared with other technologies (e.g. based on iris, fingerprints, retinal scans), FR requires a lower degree of cooperation of the subject to be recognized, thus becoming, in some cases, the only way for identifying a subject.

©IJRASET (UGC Approved Journal): All Rights are Reserved

C. *The Solution of The Problem*

The system must provide a platform free of a lengthy process instead it tries to directly fetch as much information of the user as possible. The system must maintain the privacy of the details of the missing and sighted persons. The system must use the recent advancement in the field of Artificial intelligence and facial recognition. The use of AI removes the manual work or suspecting the sighted person with the missing one. The system must be open to common citizens to fight against the human trafficking and save the lots of lives. No proof required for the testing or helping the suspected person just the reason or the condition that sit. The system stores the details of the sighted person for the future reference. The system wants to a lookout over all the databases over personal, the police F.I.R to the online social platform. The missing person details must not be open for anyone except the complaint launcher. The system tries to produce the environment that is flawless and can provide the highest functionalities at the same time.

IV. EXISTING SYSTEM

A. *KhoyaPaya*

KhoyaPaya is a citizen-centric portal for the missing and vulnerable children, where any citizen can register with the portal and provide information about a missing or sighted child, without waiting to complete the legal formalities. The information supplied by the citizen would be made available for public view after quick moderation, thereby saving the valuable time. The citizen can further do searching of the database of the children by matching the attributes of the lost/sighted child. This also considerably reduces the time for the relevant information to reach the affected citizen. The mobile app facilitates the user in providing details of sighted children.

Khoya Paya, a missing child tracking website launched by the ministry of women and child development is one of the basket of initiatives launched by the Modi Sarkar. It was launched on June 2 and a little less than five months on, the website has 3,534 users. "We have another portal named 'Track Child' that belongs to the ministry of home affairs, but in that portal only police communicate with the police. So, "Track Child" is a limited portal, whereas everybody can participate in the new portal. The new Khoya Paya web portal establishes citizen to citizen contact and allows India to take part in a search for missing children," women and child development minister Menaka Gandhi had said at its launch.

The dashboard of KhoyaPaya shows a graph — "missing and sighting trend" in which it shows month wise breakup of the number of children missing and spotted. A total of 601 children were reported missing and 1612 spotted since the launch. Registration is simple. All one needs is a mobile number. Along with the name, address, email id and mobile number, one is also required to upload the Aadhaar number and/or a valid id proof. Not uploading valid id proof will bar the user from entering the system after five successful logins.

B. *FaceTagr*

Within the past five years, more than 250,000 children have gone missing in India. Various factors make it difficult for families to find their loved ones. To combat this worrying epidemic, a Chennai IT developer named Vijay Gnanadesikan developed a closed application called FaceTagr. The app uses facial recognition technology to identify missing people. FaceTagr has amassed a photo database of nearly 300,000 missing children and has already identified and returned more than a hundred.

For close to a year now, Vijay and his team have been surfing various central and state government websites and social networking sites to create a bank of photos of nearly three lakh children, some of them in government or private homes but missing from their families. "If you feed in a photo, our software automatically links it to children who look similar in our database," said Vijay, pointing to a photo of a 4-year-old child beggar in Allahabad he chanced upon on Facebook. It matched with the picture of a boy on the Centre's Track Child portal reported missing from Haryana by his parents.

At present, the closed application, Facetagr, has helped track more than 100 children across the country. Vijay's team is now in talks with the anti-child trafficking unit in TN and the directorate of social defense to incorporate facial recognition into its tracking system. It also working on a project to track families of around 15,000 children from Nepal rescued while being trafficked into India. "We are giving 15 handsets with the app to volunteers there," said Vijay.

C. *ChildTracker*

TrackChild portal provides an integrated virtual space for all stakeholders & ICPS bodies which includes Central Project Support Unit (CPSU), State Child Protection Society/Units and District Child Protection Units (DCPU), Child Care Institutions (CCIs), Police Stations, Child Welfare Committees (CWCs), Juvenile Justice Boards (JJBs), etc. in the 35 State/UTs. It also provides a networking system amongst all the stakeholders and citizens to facilitate tracking of a "Child in distress". It requires data entry and

©IJRASET (UGC Approved Journal): All Rights are Reserved

updating at various levels such as Police stations, Child Care Institutions (CCIs)/Homes, Shelters, Child Welfare Committees, and Juvenile Justice Boards etc.

The Software also provides facilities for mapping of vulnerable locations, i.e. those which have a large number of children reported missing, so that corrective action can be taken in these areas. Monitoring by senior officers of the action being taken by the Police to trace the missing children has also been streamlined through the software.

Broadly TrackChild software has two modules, the information of the children, who are already covered under the Juvenile Justice (Care and Protection of Child) Act 2000 and the Integrated Child Protection Scheme (ICPS) is to be entered into the software by the Integrated Child Protection Scheme (ICPS) functionaries including Child Welfare Committees (CWCs) & Juvenile Justice Boards (JJBs) members, and the information of the missing children being reported is to be entered and updated at the police stations. The ultimate goal of TrackChild project is to facilitate the matching of 'missing' children being reported at Police stations with those 'found' children who are residing in the Child Care Institutions (CCIs).

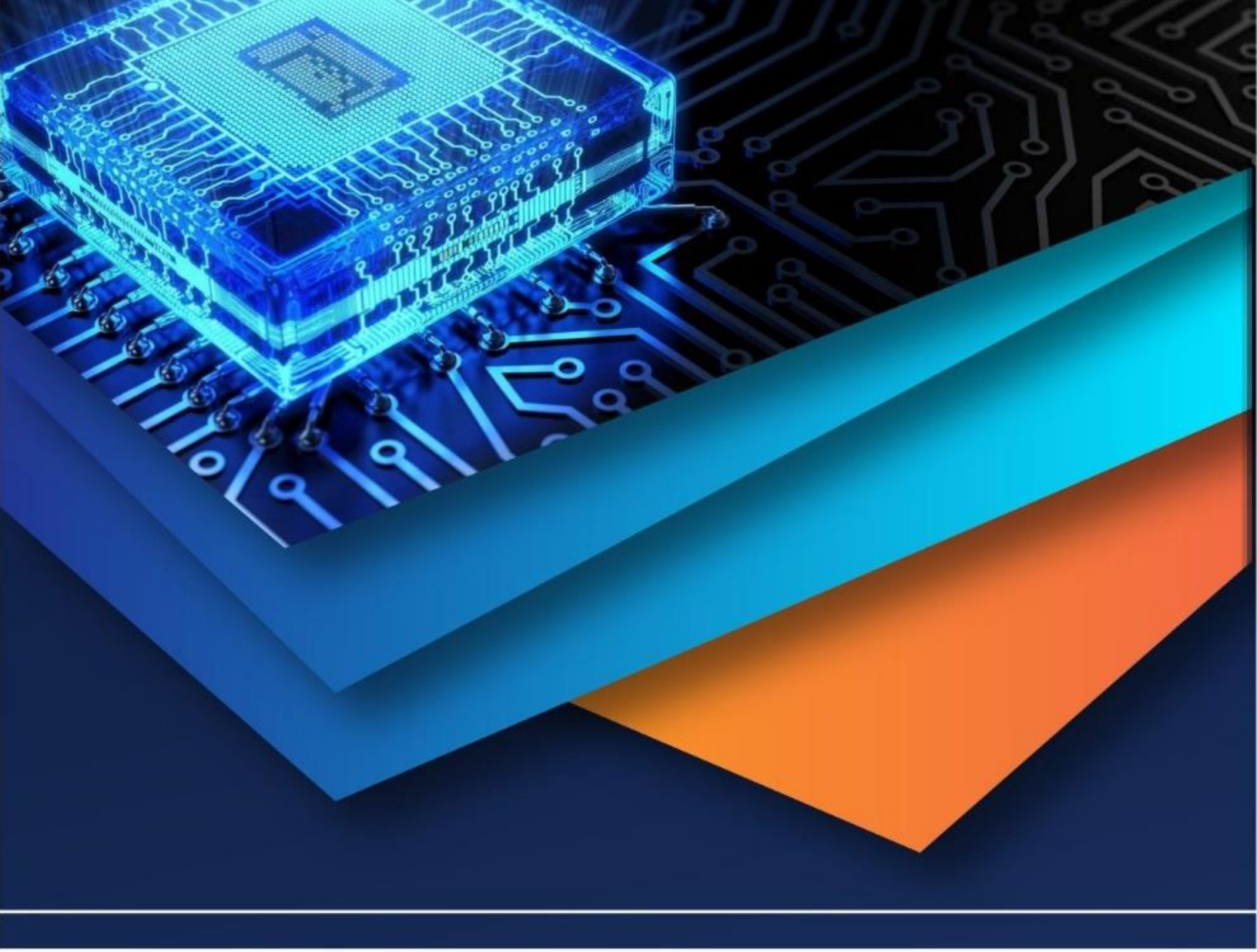
V. CONCLUSION

The project aims at implementing the face recognition technology in tracing the victims of human trafficking. The privacy of the details that use by the algorithm and the portal will be maintained as it was a big issue in the existing system the user can only access the details with the registered mobile number and verifying the OTP.The project aims to provide easiest procedure free service according to the user point of view in both cases of register the missing complain and registering the sighted person details on the server. To use various API that can fetch and work with the details automatically by user permission without more intervention. The project uses the high end advanced API library provided by Google known as TensorFlow which is an open source software library called TensorFlow.. The TensorFlow software library will be used to detect and recognize the faces. The API called facenet and inception v4 and OpenCV are used for face detection recognition and tracking. Currently, the best performing model is an Inception-Resnet-v4 and facenet model trained on CASIA-Webface aligned with MTCNN. The accuracy on LFW for the model 20170512-110547 is 0.992+-0.003. The implementation of the original algorithm on project use case will require some modification to the original algorithm but the accuracy of the algorithm will not change the accuracy of the algorithm.

REFERENCES

[1] Facenet: A Unified Embedding for Face Recognition and Clustering Link: https://arxiv.org/abs/1503.03832 A Discriminative Feature Learning Approach for Deep Face Recognition Link: https://arxiv.org/abs/1503.03832 • Deep Face Recognition Link: http://ydwen.github.io/papers/WenECCV16.pdf • Visual Geometry Group Link: http://www.robots.ox.ac.uk/~v

©IJRASET (UGC Approved Journal): All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)