

Vision Based Attendance System

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TASK

- Using CV-based Attendance System will reduce the cost of traditional biometric systems, punching machines, and procurement and maintenance of smart card.
- It will reduce any option of duplicity for attendance monitoring as the Person's individual face marks his/her attendance.
- The system is simpler compared to age-old methods and saves time and effort in logging attendance thereby increasing productivity.

Why it is hard?

The model faces challenges as images obtained from real time CCTV are mostly occluded, rotated or zoomed out faces, which would require image correction measures.



Literature Survey

- [1] Jiankang Deng, Jia Guo, Niannan Xue, Stefanos Zafeiriou, “ArcFace: Additive Angular Margin Loss for Deep Face Recognition” , CVPR 2019.
- [2] Florian Schroff, Dmitry Kalenichenko, James Philbin , “FaceNet: A Unified Embedding for Face Recognition and Clustering”, CVPR 2015.
- [3] Hui Ding, Shaohua Kevin Zhou, Rama Chellappa, “FaceNet2ExpNet: Regularizing a Deep Face Recognition Net for Expression Recognition”, [arXiv.org](#) 2015.
- [4] Qiong Cao, Li Shen, Weidi Xie, Omkar M. Parkhi, Andrew Zisserman, “VGGFace2: A dataset for recognising faces across pose and age” , [arXiv.org](#) 2017.

Literature Survey

- [5] Kaipeng Zhang, Zhanpeng Zhang, Zhifeng Li, Yu Qiao ,“Joint Face Detection and Alignment using Multi-task Cascaded Convolutional Networks” , arXiv.org 2016.
- [6] Jinhyung Park, Xinshuo Weng, Yunze Man, Kris Kitani ,“Multi-Modality Task Cascade for 3D Object Detection” , arXiv.org 2021.
- [7] Naimish Agarwal, Artus Krohn-Grimberghe, Ranjana Vyas,“Facial Key Points Detection using Deep Convolutional Neural Network – NaimishNet” , arXiv.org 2017.
- [8] Halder, R., Chatterjee, R., Sanyal, D.K., Mallick, P.K.: Deep learning based smart attendance monitoring system. In: Proceedings of the Global AI Congress 2019. Advances in Intelligent Systems and Computing, vol. 1112. Springer, Singapore (2019).

DATASET USED

FACE RECOGNITION

VGGFace2

3.31 million images divided into 9131 classes, each representing a different person identity.



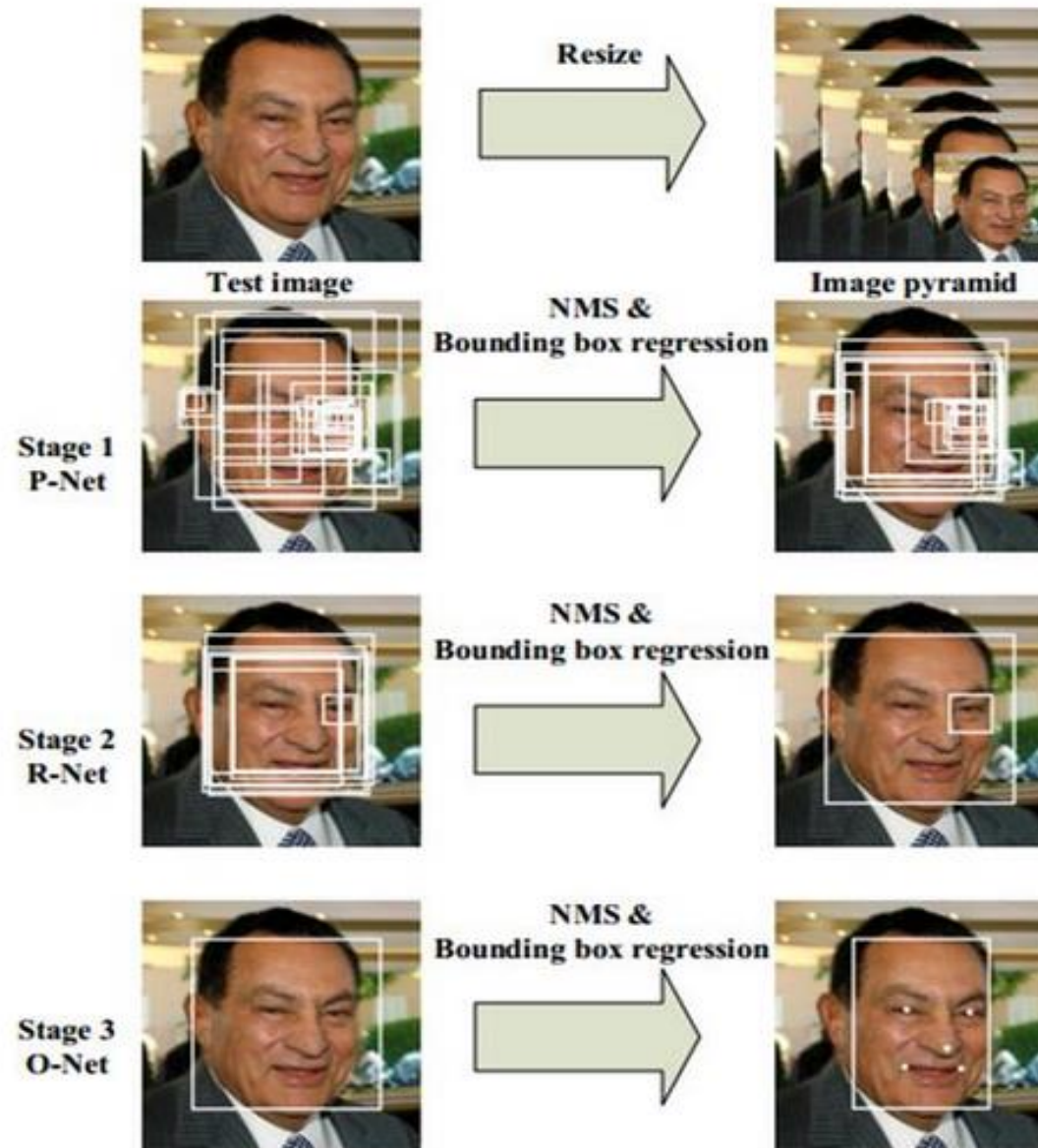
Face Detection

WIDER FACE

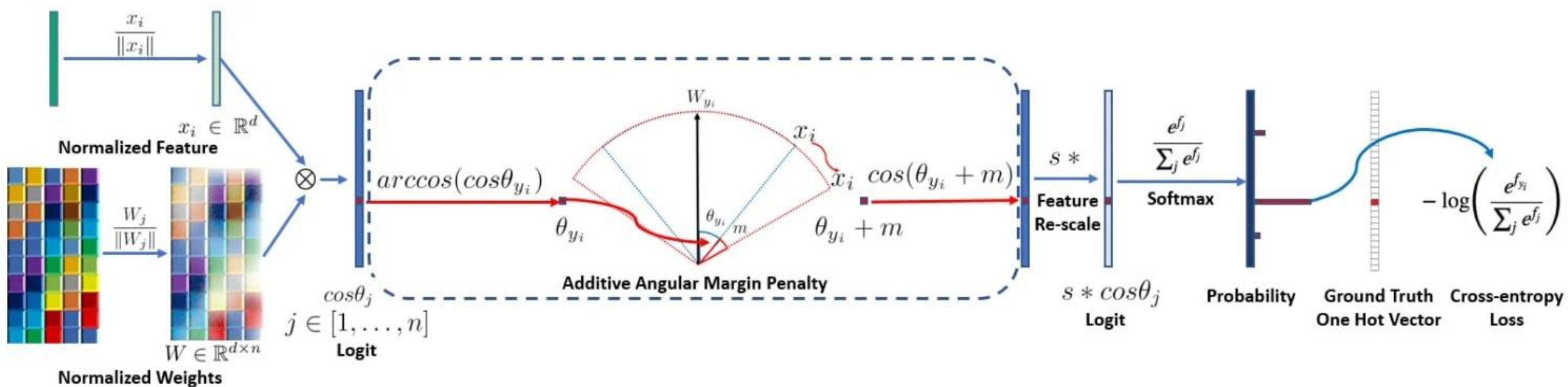
Contains 32,203 images and labels 393,703 faces with a high degree of variability in scale, pose and occlusion.



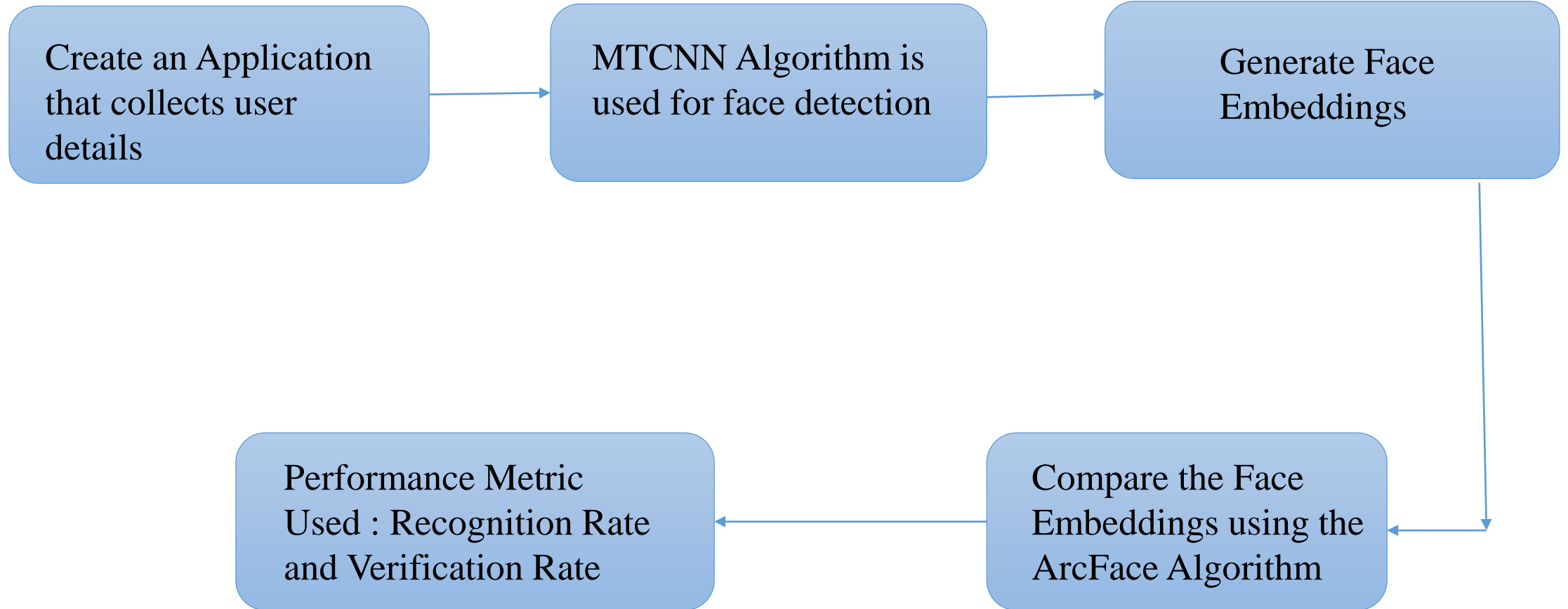
Face Detection Using MTCNN



Face Recognition Using ArcFace



Approach



Approximate Timeline

Task	Deadline
GUI Interface for Registration	03/15/2022
MTCNN Model Implementation	04/02/2022
Arc Face Model Implementation	04/15/2022
Prepare report and presentation	04/25/2022

