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TEXT DETECTION AND FACIAL EMOTION RECOGNITION FOR VISUALLY IMPAIRED USING MACHINE LEARNING

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Abstract - *Vision is the one of the main perception senses of human sensorial mechanism beside sense of smell, sense of hearing and feeling. Loss of vision prevents perform autonomously their daily activities .At this situation they need a personal assisting system. To provide them the assistance for face and text detection and recognition we will design the face and text detecting and recognizing system, so that the inconvenience of blind people get reduced.*

***Key Words*: Face recognizing, Text detection, LBP, PCA, Dataset.**

1. INTRODUCTION

"Text identification and Face acknowledgment for outwardly hindered" is a python based venture to help daze individuals for text and face acknowledgment and location. Which helps the visually impaired individuals in procedure of understanding content and perceiving individuals. To improve the capacity of individuals who are visually impaired or have critical visual weaknesses to freely get to and get text and individuals, we propose another structure utilizing a solitary camera to identify and perceive the face and text data related with the distinguished item. It become simple for them carry on with their every day life without any problem.

2. METHODOLOGY

Dataset: An informational collection could likewise be a lot of any sort of information. Most normally an information set relates to the data of database table, where each section of the table speaks to a chose variable and each column compares to a given individual from informational index . There are principally two highlights in this paper is to recognize the content and face acknowledgment. The dataset will store picture writings and it will recognize.

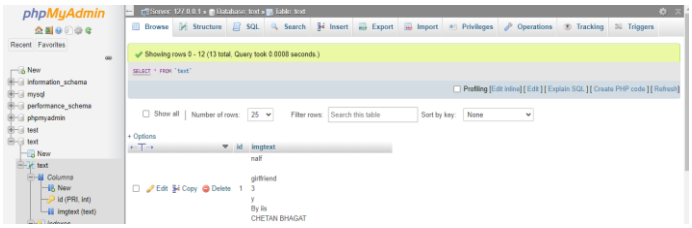

Figure 1: Dataset of an image text

Classification: In this project it detects the text and it recognize the stored faces and text from the database or dataset. If an unknown person is there it won't recognize. There are five options that is command button that we use in our project and they are:

1. Take Image
2. Train Image
3. Track Image
4. Text and Speech
5. Speech

In first alternative we take the picture of an individual that will be perceived, a 200 and one picture will be taken and in the wake of taking a picture we train that 200 and one pictures from the database that is the subsequent choice, in the wake of trains we will follow the picture and afterward it will perceive that specific face of the individual. In the fourth alternative it will distinguish the content and read out it to the visually impaired individual and the last choice that will peruse out the substance that is given to the database.

3. RESEARCH FINDINGS

3.1 Algorithm used:

a)Lbp Algorithm

Nearby twofold examples (LBP) is a kind of visual descriptor utilized for arrangement in PC vision. LBP is the specific instance of the Texture Spectrum model proposed in 1990.LBP was first depicted in 1994. It has since been seen as an incredible element for surface grouping; it has additionally been resolved that when LBP is joined with the Histogram of Oriented slopes (HOG) descriptor, it improves the identification execution significantly on some datasets. An examination of a few upgrades of the first LBP in the field of foundation deduction was made in 2015 by Silva et al. A full review of the various renditions of LBP can be found in Bouwmans et al.

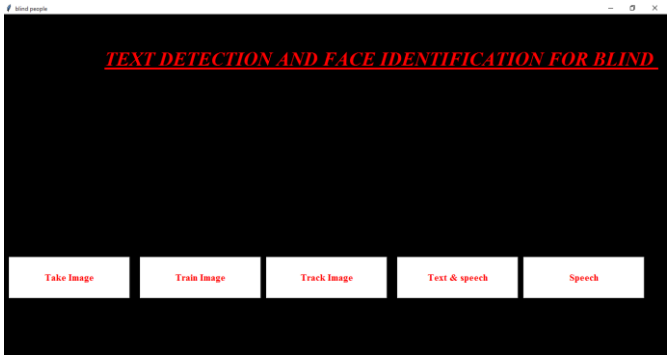

Figure 2: Five options to select

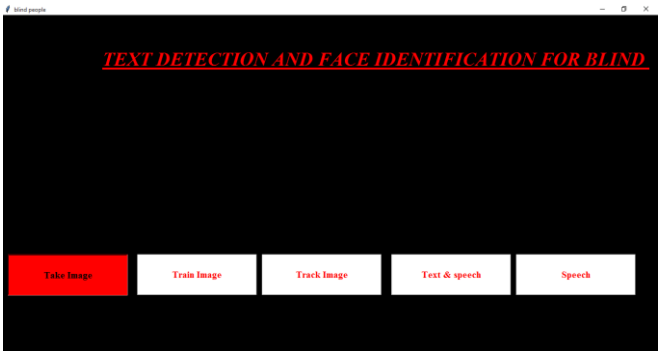

Figure 3: First option for taking image

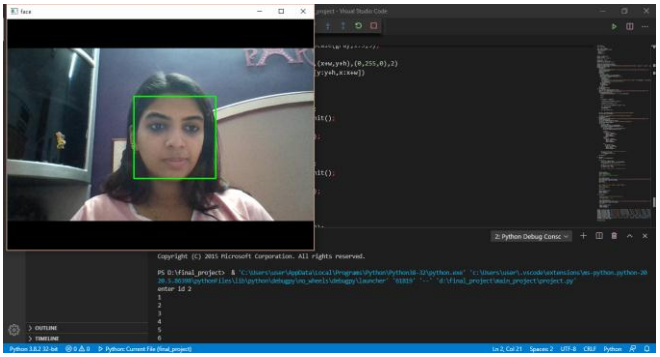

Figure 4: Taking image for id 2

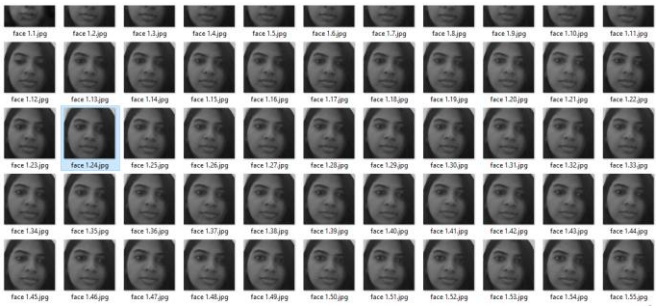

Figure 5: Database of image taken, approximate 201 images captured

Figure 6: Training our image

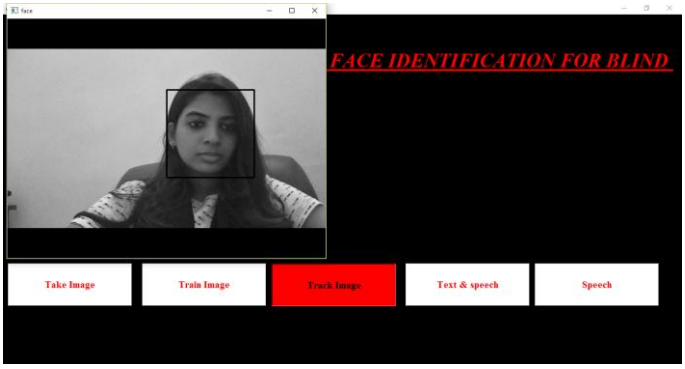

Figure 7: Tracking Image

After training our image it tracks and recognize the person.

b) PCA Algorithm

Principal component analysis (PCA) is a technique to bring out strong patterns in a dataset by suppressing variations. It is used to clean data sets to make it easy to explore and analyze. PCA is mostly used as a tool in exploratory data analysis and for making predictive models. It is often used to visualize genetic distance and relatedness between populations. PCA is either done by singular value decomposition of a design matrix or by doing the following 2 steps:

1. Calculating the data covariance (or correlation) matrix of the original data

2. Performing eigenvalue decomposition on the covariance matrix

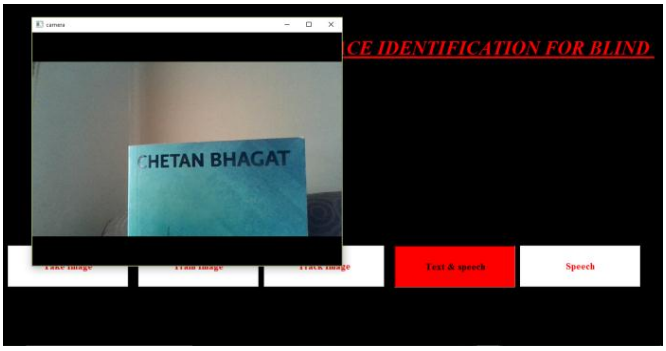

Figure 8: Text and speech image as been taken

3.2 Results

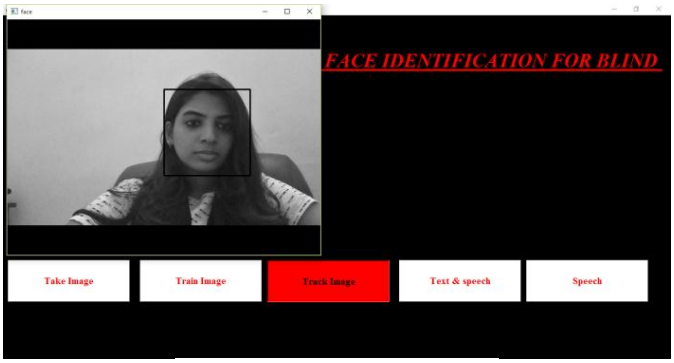

Figure 9: Output of face recognition

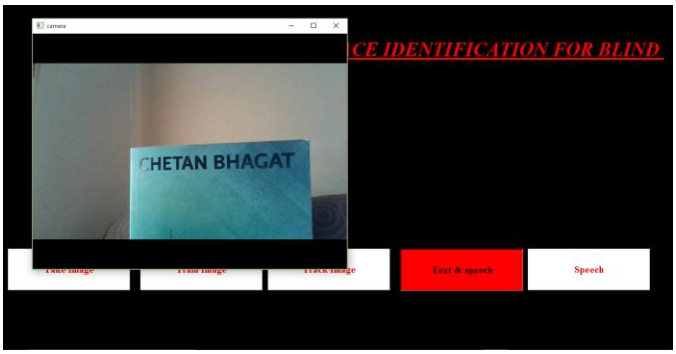

Figure 10: Output of text and speech

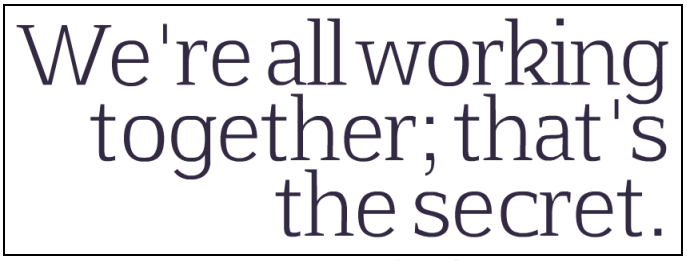

Figure 11 : Output of speech

4. CONCLUSIONS

In this paper, I've proposed of 2 sorts of calculations handling for the trial study we've utilized the Mysql dataset in PCA calculation results were looked at and best calculation is picked on the idea of exactness and time required for model assessment. From the outcomes it's been seen that both the calculation give best exactness. By examining the calculations we reached the resolution that by utilizing this discovery it is useful for the outwardly debilitated individuals. The calculation which gives the higher precision is both the calculation from the examination.

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