

FACE RECOGNITION USING PROCESSING FOR VISUALLY CHALLENGED PEOPLE

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ABSTRACT

Audio output is designed for the visually challenged people. The audio output is generally fed to an ear phone through which the color and the face is recognized and the output is given through the earphone. Our Eyes encourages us to identify the face and perceive the individuals. For dazzle and outwardly tested individuals, particularly if the individual's eye veins and retina are harmed, it gets unfit to do as such. The innovation has been advancing furiously and with each new development of science and innovation, the simplicity of living is expanding yet barely it tackles the man's physical powerlessness. Building up fixing for the blind and outwardly impeded individuals is definitely not a newly advanced issue. In any case, building up a computer-based answer for such a goal is

creating a zone. The computer vision zone is on its way to arrive at the top in creating the vision for robots yet not a replacement for human sight. The target of this framework is to help the client to recognize the individuals without the assistance of a third individual or without the individual being presented himself.

INTRODUCTION

This project suggests the concepts of "facial recognition of physical challenges". The greatest difficulty for blind people is seeing obstacles behind and outside. In many cases they rely on other people for their blindness therefore they need the support of someone else (people) In their daily life they are facing with many problems if they want to move starting with one spot then onto the next place, they need guidance help them. They need

to see the person in front of them and hence to avoid these situations this research work proposes a face recognition system for people with visually challenged by using raspberry pi.

PROJECT DESCRIPTION

In this project, I introduce the CNN framework, an assistive device designed to improve cognition, interaction, and communication of visually impaired (VI) people in social encounters. The proposed approach jointly exploits computer vision algorithms (region proposal networks, ATLAS tracking and global, and low-level image descriptors) and deep convolutional neural networks in order to detect, track, and recognize, in real-time, various persons existent in the video streams. The major contribution of the paper concerns a global, fixed-size face representation that takes into the account of various video frames while remaining independent of the length of the image sequence. To this purpose, we introduce an effective weight adaptation scheme that is able to determine the relevance assigned to each face instance, depending on the frame degree of motion/camera blur, scale variation, and compression artifacts. Another relevant contribution involves a hard negative mining stage that helps us differentiating

between known and unknown face identities.

SYSTEM TESTING

Testing is a process of executing a program with the intent of finding an error. Testing is the crucial element of software quality assurance and presents ultimate review of specification, design and coding. System testing is an important phase. Testing represents an interesting anomaly for the software.

TYPES OF TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product.

UNIT TESTING

Unit testing is the testing of each module and the integration of the overall system is done. Unit testing becomes verification efforts on the smallest unit of software design in the module. This is also known as 'module testing'. The modules of the system are tested separately. This testing For example, the validation check is done for verifying the data given by the user where both format and validity of the data

entered is included. It is very easy to find errors and debug the system.

INTEGRATION TESTING

Data can be lost across an interface, one module can have an adverse effect on the other sub function, when combined, may not produce the desired major function. Integrated testing is systematic testing that can be done with sample data. Integration Test Case differs from other test cases in the sense it focuses mainly on the interfaces & flow of data/information between the modules. The need for the integrated test is to find the overall system performance. There are two types of integration testing. They are i. Top-down integration testing

ii. Bottom-up integration testing.

OUTPUT TESTING

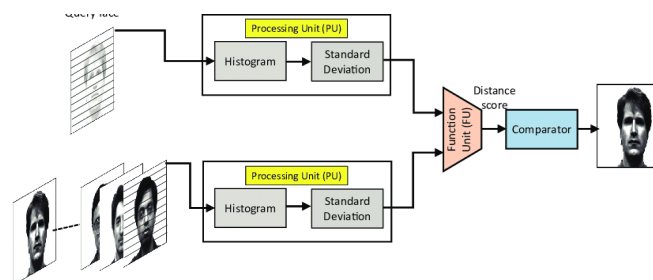
After performing the validation testing, the next step is output testing of the proposed system, since no system could be useful if it does not produce the required output in the specific format. The output displayed or generated by the system under consideration. Here the output format is considered in two ways. One is screen and the other is printed format. The output format on the screen is found to be correct as the format

was designed in the system phase according to the user needs

SYSTEM DESIGN

SYSTEM ARCHITECTURE

Human visual system plays an important role in information regarding surroundings. Since visual signal provides with more data than auditory information, visual signals are more effective than auditory signals when the human being perceives information. However, in case of blind people the lack of visual information constrains recognizing information

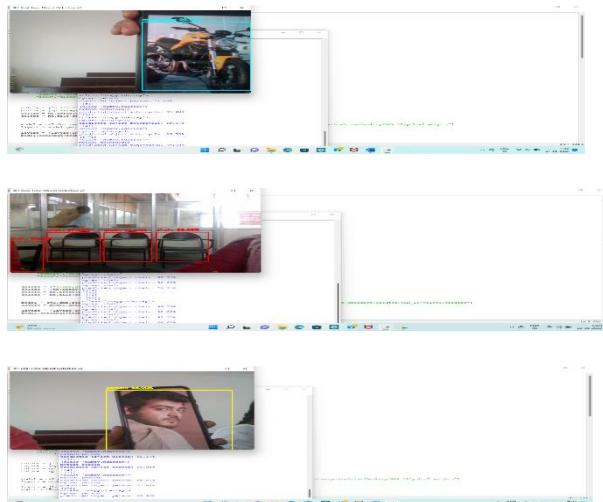


SYSTEM IMPLEMENTATION

Blindness is a major problem in today's society. Blindness occurs from children to aged people in this era. They face lots of hurdles in performing their daily routine life. In their homes also they need others to help to navigate from one place to another place and to identify objects in front of them. Blindness is caused due to the damage of the retina and older people get affected by various eye disorders because

of aging. Raspberry pi is used to implement the assistive system on the open CV platform using python language.

SCREENSHOT



CONCLUSION

The proposed thesis proposes of detection and thus identification of major objects as well as face recognition from personal dataset. For the Object and Facial Recognition, YOLO Algorithm and MTCNN Networking are implemented respectively. The software is designed using OpenCV libraries of Python as well as implementing machine learning process. The major processor of our thesis, Raspberry Pi scans and detects the facial edges via Pi camera and objects are recognized via mobile camera. Image recognition results are transferred to the

blind users by means of text-to-speech library and an audio device

FUTURE ENHANCEMENT

The basic concept of facial and object detection system is a very commonly known factor. Not only for the aiding of visually impaired people, this notion is in implementation in many sectors such as security and industrial manufacturing. The efficiency and accuracy differ by the algorithm and processing functions

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