Alexa for dump and deaf people using natural language processing

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ABSTRACT

Addressing the issues of People with Hearing and Vocal Impairment through a single aiding system is a tough job. A lot of work in modern day research focuses on addressing the issues of one of the above challenges but not all. The work focuses on finding a unique technique based on the machine learning that aids the mute by letting them hear what is represented as text and its sound. The proposed system achieved the technique that takes the sign image through a web camera and applies to the image processing then analysis what exactly want to the mute people at end the text available to voice signals. All these three solutions were modulated to be in a single unique system. All these activities are coordinated using the Ubuntu system using python. The vocally impaired people are helped by the process in which the image to text and text to speech is given using machine learning.

Key Words: Sensors, Tracking, Raspberry pi

ARTICLE INFO

I. INTRODUCTION

Approximately 285 million people are judged to be visually impaired worldwide in which 39 million are blind and 246 are said have low vision. Approximately 90% of this world's vocally impaired is from the dispirited income people and 82% of people living with blindness aging persons and above. The numbers of people visually impaired from eye related diseases have been brought down in the past 20 years according to global estimated work. In which 80% of all visual restitution can be prevented or cured. India is considered to be the home for the world's largest act of blind people. In this world, about 37 million are blind, in which 15 million are from India. There are so many researches have been getting along in this universe, but the visual impairment could not be broken for good. In lodge to facilitate these people we have developed the assistive device for blind people who does not want the assistance of other neighbours.

Dumber people can simply tilt the message by sign language which could not be understandable by other people. In resolving these difficulties with visually and vocally impaired people we have used the sign image to the system and generate the voice. By this device we provide the solution for blind, deaf and dumb people. For blind people the image is converted to voice by using Tesseract software,

the deaf people received their content by message as soon as the opposite person speaks out it displayed as a message. The dumb persons conveyed their message through text instead of sign language which is delivered via e speak. We have provided necessary steps to resolve the problems of those masses. The motivation for a hand gesture recognition is to assist handicapped users. We can provide quality assistance to the physically challenged users, also for senior citizens by devising Image Processing techniques. It is manual operation. Persons actions are difficult to understand. Sometime persons action or gestures are difficult to recognized as it is tough job. Then in that case communication getting difficult and more inconvenient. Conveying information to be take more time. It is difficult as well as very time consuming. These are main problems which create disturbance in communication. staff and ground control. With the use of microcontroller, it has also become possible to design smart lighting system for easy recognition in low-to-no light conditions which may occur in underground coal mines using various intensities and colors of modern RGB LED.

II. SYSTEM ARCHITECTURE

The great challenge lies in the developing an economically feasible system so that physically impaired people can communicate easily.

Datasheet of all hand gesture will be made beforehand. Then using the python programming the real time picture will sign will be capture and will be compared with datasheet.(photo can captured will be controlled to binary image)

The python will give the output based on the Ubuntu system and accordance with matched picture at the end there is a sound being used to generate the voice message there is speaker through which message can easily hearfd
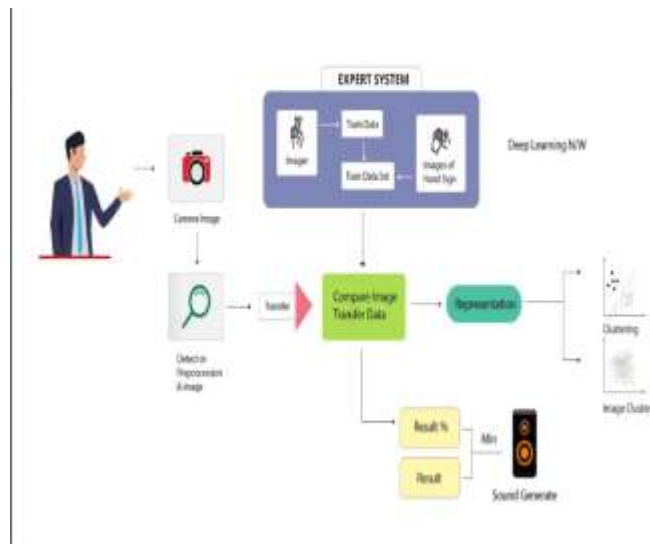
2.1 HARDWARE IMPLEMENTATION

The overall block diagrams of transmitter and receiver sections of the real time coal mine monitoring system are

ALEXA

Alexa is an echo device connects through internet it recognize the the image input and through the image processing and play the music

Web camera

The web camera is used for hands movements are recorded by a webcam and translated into the pointer movements. Webcam to detect gesture made by the user and performs the basic operation.

Raspberry pi

The main function of the *raspberry pi* which is used to monitors an object and extracted the feature. It is used to detecting the object and track. The designed shows that the system is fast enough to run the image capturing. It used hand gesture algorithm to identify the object (hand). Which is based on the human computerized system for sake the control.

2.2. SOFTWARE IMPLEMENTATION

1. Python
The python is high level language generally used for the programming language which used to emphasize on the code readability

The main goal of the python is to train the machine learning algorithm and used to classify the different images dataset and perform the various operation.

2) QT Designer
The QT Designer is a tool used for graphical user interface which use to design the various GUI framework. QT Designer is used to create UI files containing windows and files.

3)NetBeans IDE (PHP Website):
To design the Website for server side algorithm. PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used .it is open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

4)OPEN CV
The opencv python is a library of Python bindings design to solve various kinds of hand gestures problems. Opencv is a library mainly focused on real time computer vision.

III. ALGORITHM

1. Start
2. Load Hand sign Dataset for analysis
3. Capture hand sign image for the web camera
4. Apply for the image processing for image gray scale

5. Match Gestures based on the training dataset
6. Show the text output on the monitor
7. Output in the form of the sound

IV. CONCLUSIONS

The implementation of the proposed system aims to be translate the gesture into the speech voices. The scope of the project is to enhance recognition capability for various lightning condition and achieving the more accuracy. Implementing and identifying the more number of the gesture. The miniature of the system should be done.

V. REFERENCES

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