ARTIFICIAL INTELLIGNECE

Real-Time Communication System Powered by AI for Specially Abled

Literature Survey

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Literature Survey

In our society, we have people with disabilities. The technology is developing day by day but no significant developments are undertaken for the betterment of these people. Communication between deaf-mute and a normal person has always been a challenging task. It is very difficult for mute people to convey their message to normal people. Since normal people are not trained in hand sign language. In emergency times conveying their message is very difficult. The human hand has remained a popular choice to convey information in situations where other forms like speech cannot be used. Voice Conversion System with Hand Gesture Recognition and translation will be very useful to have a proper conversation between a normal person and an impaired person in any language.

TITLE :Script and Language Identification in Noisy and Degraded Document Images

AUTHORS :Lu Shijian, Chew Lim Tan

PUBLISHED IN: 2008

This paper reports an identification technique that detects scripts and languages of noisy and degraded document images. In the proposed technique, scripts and languages are identified through the document vectorization, which converts each document image into a document vector that characterizes the shape and frequency of the contained character or word images. Document images are vectorized by using vertical

component cuts and character extremum points, which are both tolerant to the variation in text fonts and styles, noise, and various types of document degradation. For each script or language under study, a script or language template is first constructed through a training process. Scripts and languages of document images are then determined according to the distances between converted document vectors and the preconstructed script and language templates. Experimental results show that the proposed technique is accurate, easy for extension, and tolerant to noise and various types of document degradation.

TITLE :Utalk: Sri Lankan Sign Language Converter Mobile App using Image Processing and Machine Learning

AUTHORS :I.S.M Dissanayake, P.J Wickramanayake, M.A.S Mudunkotuwa, P.W.N Fernando

PUBLISHED IN: 2020

Deaf and mute people face various difficulties in daily activities due to the communication barrier caused by the lack of Sign Language knowledge in the society. Many researches have attempted to mitigate this barrier using Computer Vision based techniques to interpret signs and express them in natural language, empowering deaf and mute people to communicate with hearing people easily. However, most of such researches focus only on interpreting static signs and understanding dynamic signs is not well explored. Understanding dynamic visual content (videos) and translating them into natural language is a challenging problem. Further, because of the differences in sign languages, a system developed for one sign language cannot be directly used to understand another sign language, e.g., a system developed for American Sign Language cannot be used to interpret Sri Lankan Sign Language. In this study, we develop a system called Utalk to interpret static as well as dynamic signs expressed in Sri Lankan Sign Language. The proposed system utilizes Computer Vision and Machine Learning techniques to interpret sings performed by deaf and mute people. Utalk is a mobile application, hence it is non-intrusive and cost-effective. We demonstrate the effectiveness of the our system using a newly collected dataset.

TITLE :Smart Com for Differently Abled

AUTHORS :D L Shanthi,Keshava Prasanna,Gireesh Babu C N

PUBLISHED IN: 2018

Advancements in technology drives us to design new and cost effective solutions to many challenging issues related to society and human kind. This paper is an outcome of such an effort made to help impaired people having hitches in communicating with rest of the world. A design of a wearable device using an open source to aid impaired persons in communication using Malossi alphabet. Basically a Malossi alphabet based Mobile Communication and Translation Glove for differently abled. There are numerous hurdles to converse between physically disabled people and nondisabled people. The communication method of disabled people is entirely different from that of non-disabled people, so they cannot converse with each other directly. Our paper suggests an innovative method for the communication between them. The impaired person can use the glove to deliver messages and the output will be displayed or heard through an android application which can be translated into multiple languages and also be transmitted to users in different locations. This is a simple and cost-effective solution to support impaired people in communication.

TITLE :An App to Assist Differently Abled People

AUTHORS :Amitha M. Lokeshwar; Ananya Hardikar; G. C. Srivarsha; R. S. Priyanka; K. J. Bhanushree

PUBLISHED IN: 2021

The system proposes an application for differently abled people such as blind, deaf, dumb and hand disabled to communicate among themselves using Android Development. It includes voice enabled object detection and distance estimation assistance to blind using Tensorflow Lite Object Detection API, image to speech conversion using OCR text recognition with OpenCV and TextToSpeech API to assist the blind. It also provides navigation feature for blind using Mapbox and Geocoder library. The application also has text- to-speech conversion using TextToSpeech API and speech-to- text conversion using a Speech Recognition library to facilitate easy chatting among themselves. It also provides chatting option built using Firebase.

TITLE :Implementation of voice based wheelchair for differently abled.

AUTHORS :M. Bala Kumaran, A. Pravin Renold

PUBLISHED IN: 2013

The main objective of this work is to process the voice signal and is implemented to control a wheelchair by the voice signal which is processed earlier. The adopted model is to combine PIC microcontroller and VRbot module with voice recognition system for identifying individual words and is speaker dependent. The command given by the user is taken into VRbot module by microphone which is built within speech recognition module. Once voice command is recognized, the signal is transferred to the controller where stepper motor module is connected. PIC microcontroller capture appropriate signals from speech recognition module and wait for the Ultrasonic Sensor, which is doing the process of obstacle detection in its path. Whenever the conditions, signal to move from VRbot and no obstacle detection from Ultrasonic Sensor is received, the motion of wheelchair is performed.

TITLE :Machine Learning Based Smart Assistive Device for Differently Abled People-SADDAP

AUTHORS :Jayashree Agarkhed, Lubna Tahreem

PUBLISHED IN: 2022

Recently, Human Activity Recognition (HAR) has turned into an energetic exploration region, particularly because of the spread of electronic gadgets, for example, cell phones, digital watches and camcorders present in our everyday lives. Likewise fall accidents are one of the primary sources of passing's because of cracks brought about by clash with the ground or hard obstructions. The failure to see objects around oneself is the most tragic things that could happen to an individual. This likewise annihilates the capacity of the individual to move around without anyone else in known regions and conditions. Over the range of the last decade, a few sorts of gadgets have been intended to help the differently abled individuals to move around in various types of conditions be that as it may, in any case need to have every one of the components for diversely abled individuals or senior's in one gadget. The current paper is the augmentation of our past work to add to say research with a way for offering help to differently abled or elder's people. The proposed smart assistive activity recognition device for differently abled people that perceive the movement of environment around them and assist them with living. It likewise recognizes snags and sound on their route to caution them so they don't get into an accident. The current paper adds to help differently abled individuals or elder's by permitting them to realize the encompassing objects and safe them from getting into any mishap by fall detection and obstacle detection. Activity discovery is turning into an indispensable piece of numerous portable applications. The proposed system utilizes the procedures of machine learning to make an application that would help the differently abled individuals or elders and give them a freshly discovered expectation for cherishing the lavishness and difficulty of the world, meanwhile effectively explore in it.