

Real-Time Communication System Powered by AI for Specially Abled

Literature Survey:

1) Sign Language Recognition System for People with Disability using Machine Learning and Image Processing

Authors:

Bayan Mohammed Saleh

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Muhammad Usman Tariq

Abstract:

Communication plays a significant role in making the world a better place. Communication creates bonding and relations among the people, whether persona, social, or political views. Most people communicate efficiently without any issues, but many cannot due to disability. They cannot hear or speak, which makes Earth a problematic place to live for them. Even simple basic tasks become difficult for them. Disability is an emotive human condition. It limits the individual to a certain level of performance. Being deaf and dumb pushes the subject to oblivion, highly introverted. In a world of inequality, this society needs empowerment. Harnessing technology to improve their welfare is necessary. In a tech era, no one should be limited due to his or her inability. The application of technology should create a platform or a world of equality despite the natural state of humans. On the other hand, technology is the most innovative thing on Earth for every time the clock ticks, researchers, software engineers, programmers, and information technology specialists are always coming up with bright ideas to provide convenience to everyone. This paper shows how artificial intelligence is being used to help people who are unable to do what most people do in their everyday lives. Aligned with communication, D-talk is a system that allows people who are unable to talk and hear be fully understood and for them to learn their language easier and also for the people that would interact and communicate with them. This system provides detailed hand gestures that show the interpretation at the bottom so that everyone can understand them. This research allows the readers to learn the system and what it can do to people who are struggling with what they are not capable of and will provide the technical terms on how the system works.

2)Analysis of Gesture Recognition to Evaluate Hand Signals

Authors:

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Abstract:

Human Computer Interaction is an effective tool of intersection between the human intellect and computers leading to improvisation in technology. Gestures help to communicate between two persons very effectively even without saying a word but it is really ideal to note that man's immense potential and intelligence has motivated him to interact through gestures with his own invention called computer. This paper has been prepared on MATLAB using effectively a simple algorithm and basically deals with the recognition of finger gestures. It is executed by simple steps where initially the image is converted into binary which is followed by cutting the image from the point where the longest finger starts and also an amount from the bottom to get a subtle image and then simply counting the number of white objects (i.e. fingers) and this process is repeatedly done by rotating the image in all the four directions and the result is selected taking into account the outcome of the direction where maximum number of outcomes have occurred provided the background is in a solid colour which can reveal the image of the fingers displayed clearly. The application of this work includes choosing an option from any user interface by merely displaying numbers as per the number of fingers shown. This simple and innovative effort is user friendly and can be effectively used in imparting knowledge especially to differently abled.

3)Hand Gesture Recognition for Video Processing

Author:

C.Swapna

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Abstract:

In this busy world, gestures play an vital role in humans daily life in order to convey data and motions of human being. So gesture Recognition is a part of the Human computer Interaction (HCI). In recent years Human Computer Interaction has become an attractive field. Hardware devices like mouse, keyboard, joystick can be replaced by compatible touch less technologies. Different proposed models, algorithms and methodologies have been proposed to achieve touch less environment with human interaction. Foreground and background segmentation is an important issue in video processing .The task of video processing becomes difficult when there are moving objects and shadows in the video. In this paper we analyze the methods for recognition of hand gesture and different approaches for the segmentation of video processing.

4)Real-time Sign Language Recognition using Computer Vision

Authors:

Jinalee Jayeshkumar Raval

Ruchi Gajjar

Abstract:

Speech impairment is a disability that affects an individual's ability to verbal communication. To overcome this issue sign language is used which is one of the most organised languages. There is definitely a need for a method or an application that can recognize sign language gestures so that communication is possible even if someone does not understand sign language. My paper is an effort towards filling the gap between differently-abled people like deaf and dumb and the other people. Image processing combined with machine learning helped in forming a real-time system. Image processing is used for pre-processing the images and extracting different hand from the background. These images obtained after extracting background were used for forming data that contained 24 alphabets of the English language. The Convolutional Neural Network proposed here is tested on both a custom-made dataset and also with real-time hand gestures performed by people of different skin tones. The accuracy obtained by the proposed algorithm is 83%.

