

Study about Software used in Sign Language Recognition

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Abstract:

The researcher conducted a statistical study using descriptive analytical method. He chose a simple random sample of graduates and some university students to answer the questionnaire. The data were then entered into the statistical program (spss) for analysis and conclusions. Where the study showed the lack of interest in the applications of people with special needs in general and sign language in particular, as well as lack of familiarity with the global applications available and the inability to obtain them. The study found that 95% of respondents said that the concerned colleges in the Sudanese universities did not contribute to the development of these systems and applications, and 36% of them are not interested in these applications. The study also found that (93%) of the respondents believe that the economic situation and conditions of people with special needs are behind the great ignorance and use of these software, and only (2%) of their smartphones contain applications in sign language. The study also showed the desire of some graduates to enter this field, as confirmed by (3%) of the sample, and only (4%) want to get those applications.

Methods: used Questionnaire and Data was analyzed using the SPSS statistical package.

INTRODUCTION:

People with special needs are a group of society groups, but their special needs, especially in the educational and educational fields, have made them need a different and special kind from what their natural peers require.

People with special needs are individuals with whom we share multiple common traits and who, like all individuals, need to communicate with the environment around them.

The most difficult kind of disability is the invisible disability or not noticed by others and can not be identified from any category of people with special needs such as slow learning, late learners, learning disabilities, people with problems, hearing or visual disorders or those with speech defects and diseases Speech, or disorderly emotional and behavioral, social and poor social compatibility and hyperactivity and epilepsy [1].

The use of technologies in the lives of students with special needs has many benefits for them, whether psychologically, academically, socially or economically. Psychologically, many scientific studies have shown that the use of certain techniques, such as computers, has a great role in reducing the tension and emotions among these students, where software software has a lot of entertaining programs and beautiful games that bring joy and pleasure in them.

The World Health Organization (WHO) defines Disability as: "Disability is a term that covers disability, constraints on activity, participation restrictions, disability is a problem in the body's function or structure, and limitation of activity is the difficulty a person has in carrying out a task or work. While restriction of participation is the individual's problem in participating in life situations, disability is therefore a complex phenomenon, reflecting the interaction between the personality traits of a person and the characteristics of the society in which he lives.

It is also defined as a situation that limits one's ability to perform one or more of the functions that are essential in everyday life, such as self-care, social interaction and economic activities, within normal limits. Or the inability to obtain self-sufficiency and to make it in constant need of the aid of others, and to a special education to help him overcome his disability. [3]

There are different types of disability such as motor disability, visual impairment, and verbal auditory impairment (Deaf and Mute)

Deaf uses sign language, a term used for non-voice communication used by hearing impaired or deaf-mute people, although other practices can be classified within indicative communication levels such as divers signals and some special signals of some police or military forces Or even between gang members and others are used: -

- Hand movements: like fingers to illustrate numbers and letters.
- Facial expressions: to convey feelings and tendencies. And is accompanied by hand movements to give structures of many meanings.
- Lip movements: It is an advanced stage of the power of observation as deaf people read words directly from the lips.
- Body movement: such as putting some signals on the shoulders or the top and sides of the head or chest or abdomen in the use of inspiration to clarify the desires and meanings and in general to express self, and they vary from country to country. [4]

Sign language has existed since the presence of deaf people in the world, where the language of reference began in the seventeenth century in Spain (Madrid in 1620), the publication (Juan Pabloponitet) article in Spanish called (short messages and art to teach dumb speech) The first way to deal with

phonology, addressing speech difficulties. It has also become a means of verbal instruction for children with hands movements, which represent alphabets; to facilitate communication with others. The children of Deaf at Charles Michel Delebi's School borrowed these books and adapted them to what is now known as the French Alphabet of the Deaf. The French alphabet was published in the 18th century and, to this day.

Unified sign language has been used in deaf education in Spain and Italy since the 17th century, and in France since the 18th century. [5]

One of the software used is the use of multimedia technologies through websites. There is a set of instructions for activating multimedia for the hearing impaired, such as activating the video clips in the sign language, writing the audio explanation in the user language below the video clip, and activating the audio files with auxiliary text that includes the audio file content[2] .

Now I'm talking:

A Palestinian application made in Gaza, the world's first in the world of applications that address deaf, and designed this program for easy to deal with them without the need to learn sign language.

Produced by the company "developer" specialized in the production of smart applications "The idea of the application to try to solve the problems of deafness and integration in a healthy manner in the community by listening to calls and watching television and deal with all people through the program.

The application "hope" converts text and sound into a sign language through which deaf people can interact with people continuously.

The application lasted about two years, the program is only available on the Windows Phone Store, and an Android version is being produced.

The program offers a range of integrated services including dictionary service, text enlarging and writing, YouTube for the deaf, public culture, and the latest website news with its conversion to deaf language.

The dictionary service can be used to convert words into a sign language. The number of words in the application is estimated at 2600 words used in the Arabic language and supports its conversion to 17 UN-approved languages, including a list of countries, continents, weekdays, months.

The application fee is estimated at \$ 5 per one-time fee for all services provided by the program[6] .

Application Web Sign:

It is a software that enables communication and communication with deaf people via WAP and the Internet through the automatic translation of texts written into sign language embodied by a virtual character, using multimedia techniques and processing three-dimensional images[7] .

MMS Sign:

The new software aims to enable deaf people to use mobile phones via SMS short messages. The innovative MMSEN software enables automatic conversion of text into a virtual video that embodies text in sign language and produces 3gp video clips Which can be transmitted via MMS.

The application accepts the written text before converting it to a video and sends it in two ways: by sending a short SMS message containing the text to be sent and the mobile number to which the video will be sent, which reflects the text in sign language or via WAP.

It is worth noting that the two previous applications were produced by the Sign Language Software Group in the Unit of Research in Information Technologies and Communication at the University of Tunis in 2009[7] .

The application continues to learn sign language:

Continue applications that offer an innovative learning experience for the hearing impaired. Is a project developed jointly by the SKERG Engineering Research Group of King Saud University and Tawasul - Princess Al Anoud Call Center for Deaf Services. It is a dictionary composed of different categories representing the Arabic words. Each category contains a number of words; when a word is selected, a video from the selected word mark appears as it is spoken. The dictionary features a search function that allows users to search for a specific word, a repeat feature that sets the number of a repeat tag, as well as a sound control. And select with / without pronunciation, the Favorites allow the user to add favorite words to the (my words) menu. As a contest, the player must match the word appearing in the video with the sign language to the correct word from a different word list.

The user has the ability to customize this contest by selecting different difficulty levels. As well as spelling, where the application converts the entered statement by the user into the sign language[8].

Electronic glove converts sign language into written texts(2017)

US researchers have devised low-cost electronic gloves that can transform the sign language movements used by deaf and mute to express themselves into written texts.

The glove was developed by researchers at the University of California, USA, and published their findings in the latest issue of PLOS ONE.

The new innovation is a sports glove fitted with flexible sensors at the place of the hinges of the fingers, and these gloves are low cost, not exceeding \$ 100 USD.

When the user moves his fingers, the sensor units are extended and the signal is emitted and interpreted into written language, which appears on the screens of cell phones and computers, by means of a special electronic application.

The back of the glove contains kinetic sensor units to determine whether the hand is stationary or moving, a necessary feature for distinguishing between similar characters while using sign language[9].

RESULT & DISCUSSION:

Analysis of the questionnaire questions shows the following:

1. 70% of respondents use smart phones and this is a good indicator.
2. 2% of them have their own software for people with special needs.
3. 36% of them are not interested in the software.
4. 77% of the respondents have never used software and applications in sign language.
5. And 4% of them want to get that software.
6. 93% of the respondents believe that the economic situation and conditions of people with special needs are behind the great ignorance and use of these software.
7. 63% believe that there are no Sudanese applications in sign language.
8. 81% of the respondents see the difficulty and programming of applications for the deaf and people with special needs in general
9. 95% of them believe that the relevant colleges in the Sudanese universities did not contribute to the development of these systems.
10. 3% of the sample confirmed that they designed similar projects in their graduate studies.

CONCLUSION:

From this statistical study and the data contained therein, the researcher concludes that the field of applications in sign language and applications of people with special needs in

Sudan is very weak and that the state represented in the educational and technical institutions did not care about this area despite the need for this segment for these applications.

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