Talking Glove Assistance with Instant Messaging

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Abstract: ***TALKING GLOVE ASSISTANCE WITH INSTANT MESSAGING is a simple and easy system that makes communication between a patient and normal person more comfortable with greater accuracy and limited delay. It will help the patients who struggle to reveal their needs to others even in an extreme condition. There are three modules in the project: admin, staff, and patient. The admin controls the entire system. He is responsible to add the details of the patients and the staff into the database. The patient generates the messages to the staff using an advanced glove.***

Keywords: Electronic glove, Glove assistance app and Flux sensor

1. Introduction

Communications between deaf-dumb and a normal person have always been a challenging task. The Glove Interpreter project originated by analyzing the lifestyle of the speech-Impaired, mute, and/or hard-of-hearing, a communication gap still exists between this demographic and that of the hearing. For the case of paralysis, many implementations of the wheelchair have been developed over the years. It should be seen that any amount of contribution to facilitate impairment is humanitarian. The project aims to facilitate people by means of a glove based deaf-mute communication interpreter system. The glove is internally equipped with flex sensors. For each specific hand gesture, the flex sensor produces a proportional change in resistance. The micro-controller will be responsible for deciphering the correct gestures. Once the gestures are identified, the corresponding character is then outputted into a voice record and playback system unit to translate the matched gestures to voice output. We propose our project with three stages and the final goal of the project is to develop a system that translates gestures to voice. In this first stage we will use a Data-Glove to translate the hand gestures to voltage signals. With the hands it can spread a lot of information. A device that allows reading the position of the fingers can be used as a tool to assist an individual to communicate information to people who do not understand sign language. In this project we also include a portion to help the dump call his assistant by messaging.

2. Electronic Glove as an Interactive Device

In a hospital according to patients they may have many needs to accomplish, but they cannot done it with themselves without the help of others, so they have to reveal it to others for an assist and also for any discomfortable they want to inform the hospital staff also. Hence the communication has a vital role in understanding the feelings of a patient. Through oral communication or through gestures patients cannot expose their needs efficiently, and also in the case of an emergency situation the communication again become more difficult. Existing system is a switch based system it is placed near to the patient when it pressed an alarm will produced for noticing the staff. For a very critical patient it is placed side to the patient in the bed.

Figure 1: Glove with flux sensor

There are many draw backs for the existing system. The patients need to make an effort to find the switch and use it. And also there is a problem about reachability of the switch. In many cases the switch will drop down because of the sudden handling by the patient. The other main drawback is that there is chance to no one notice the alarm. Such a situation will make the condition of the patient uncomfortable and may lead to a bad news.

The other existing system is based on vision. The main drawback of vision based sign language recognition system image acquisition process has many environmental apprehensions such as the place of the camera, background condition and lightning sensitivity. User always need camera forever and cannot implement in public place.

3. Using Electronic Glove as an Interactive Device

The electronic glove will helps the patients to exchange their requirements efficiently with the normal persons. The device is a simple and easy system that makes communication between a patient and normal person more comfortable with greater accuracy and limited delay. It will help the patients

who struggle to reveal their needs to others even in an extreme condition.

In this system the patients are provided with a glove they can wear it on either hand. For each fingers and combination of fingers we can assign a need according to the convenience of the patient. When the fingers bends the message related to the need corresponding to the fingers will send to the nearest glove assistance app installed mobile phone. The phone may be patients or his/her relative's or hospital property. It must be placed at a range of 300m from the patient. From the phone the message is send to the staff's phone that also containing the same app. The message contains the room number, patient id etc. so the staff can easily identify. For coordinating the functions of the glove assistance system there will be a server.

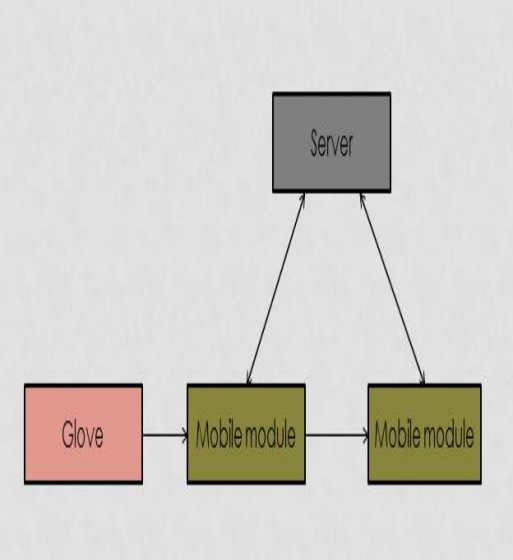

Figure 2: Block diagram

The main objective we are intending is that to provide a system for communication activity between a patient and normal person and this project is aiming to facilitate people by means of a glove based communication interpreter system that allow patients to reveal their needs to others.

4. Scope of Electronic Glove

The proposed system is designed to eliminate all the drawbacks of the existing system. The existing system has several disadvantages and many more difficulties to work well. The proposed system tries to eliminate or reduce these difficulties up to some extent. The proposed system helps the patients to work user friendly and he/she can effectively communicate with others.

The system is very simple in design and to implement. And it requires very low system resources. Working of the system is simple hence do not make any discomfortability to the patients. Components used have less cost so it is economical. Sensor gloves are normally gloves made out of cloth with flex sensors fitted on it. Flex sensors are for each finger. Flex sensors are resistive carbon elements. When bent, the sensor produces a resistance output correlated to the bend radius. More the bend, the more will be the resistance value.

It is very user friendly; patients cannot worry about handling the device. It increases the communication speed and efficiency, so the doctors can immediately approach the patient and can give them relief. Hence the staff can easily manage all the patients.

5. Conclusion

The project has been developed to make an efficient communication between a patient and normal person. In this patients are provided with an advanced glove that is capable of generating messages. The message is send to the nearest glove assistance app installed phone. From there it is send to the staff' phone with the same app. From the phone message is read and inform the staff by reading the message. This system eliminates all discomfortability of the existing system.

The system is simple and easy to use by the patients without any difficulties the patients can communicate with others. Staffs also get the benefits of the system they do not concentrate on a particular patient for accomplishing the requirements of the patients.

The Major Advantages Are:

- Easy to use.
- Do not make any discomfortable to the patients.
- Economical.
- It is user friendly.
- Communication speed and efficiency increases.
- Easily call the persons they are not near and not away by a distance greater than 300m.

Staff can easily manage all patients

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