

SMART HAND GLOVES INTERPRETOR FOR DISABLED PEOPLE

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Abstract:

This paper describes a SMART INTERPRETER GLOVE to impart an easier means of communication between impaired Or deaf people and normal people using wireless data transmission.A smart glove is incorporated with flex sensors whose, resistance value changes according to the gesture specified by the user. This gesture information is processed by the Arduino Mega 2560 microcontroller and corresponding voice output is given through controlling various devices or appliances and alert messages based on pulse sensor data to indicate health issue of old or disable person.

Keywords - *interepreter , gesture.*

1. INTRODUCTION

In the existing global it's far very complex for the deaf & dumb humans to speak with the normal humans as impaired humans lacks the services which a regular man or woman ought to own. It simply will become the equal hassle of folks which is aware of exclusive language, no one in all them is aware of any not unusualplace language so its will become a hassle to speak with every different and so that they calls for a translator bodily which might not be constantly handy to set up and this equal form of hassle happens in among the Normal Person and the Deaf man or woman or the Normal Person and the Dumb man or woman.

Although generation has been evolving hastily on this statistics age, deaf/mute humans nonetheless use signal language as their most effective manner of verbal exchange. Using signal language as a verbal exchange device may be useful amongst folks that are acquainted with this language, however the hassle stays while speaking with the broader community. Sign Language Translator is the best answer that permits deaf/mute humans to verbal exchange fluently thru generation in exclusive languages. As signal language is a proper

language using a device of hand gesture for verbal exchange (through the deaf). Many tasks used glove-primarily based totally structures for automated information of gestural languages utilized by the deaf community. The structures evolved in those tasks differed in traits consisting of wide variety of classifiable symptoms and symptoms, that can variety from some dozen to numerous thousand, forms of symptoms and symptoms, which will be both static or dynamic, and percent of symptoms and symptoms successfully classified. . The greater complicated structures aimed toward information signal languages, a chain of dynamic hand and finger configurations that imply phrases and grammatical structures. For instance, Kim and associates used a Data Glove for reputation of the Korean language, Kadous a Power Glove for the Australian language, Vamplew a CyberGlove for the Australian language , Gao and associates a CyberGlove for the Chinese language, and Liang and Ouyoung a Data Glove for the Taiwanese language. Some device interfaces for translating signal languages into textual content or vocal outputs. For instance, the Talking Glove used a Cyber Glove and recorded, recognized, and translated American Sign Language into textual content or spoken English.

Hand motion records acquisition is used in lots of engineering programs starting from the evaluation of gestures to the biomedical sciences. Glove-primarily based totally structures constitute one of the maximum crucial efforts aimed toward obtaining hand motion records. While they were round for over 3 decades, they hold attracting the hobby of researchers from more and more various fields. The improvement of the maximum famous gadgets for hand motion acquisition, glove-primarily based totally structures, began out approximately 30 years in the past and keeps to have interaction a developing wide variety of researchers. We pick out to have a look at the glove structures for signal language information.

2. LITERATURE SURVEY

Gesture recognition to voice conversion using electronic hand glove, K.Hemavani This paper presents a smart glove system that can continuously recognize sign language gesture and translate that into spoken words. The glove is fitted with a flex-sensors and magnetometer sensor to sense the movement made by fingers. New gestures can be added to the existing gesture library. This gives the system the flexibility to meet the high degree of variation among sign languages, and also the need to do some custom gestures for those industrial work. Sign language is used by deaf and mute people and it is a communication skill that uses gestures instead of sound to convey meaning simultaneously combining hand shapes, orientations and movement of the hands, arms or body and facial expressions to express fluidly a speakers thoughts. Gesture is a non-verbal form of communication. The series of gestures such as hand movements and facial expressions indicating words are referred to as sign language. Sign language recognition systems are used to convert sign language into text or speech to enable communication with people who do not know these gestures. Usually, the focus of these systems is to recognize hand configurations including position, orientation, and movements. The proposed work Hand gestures are strong medium of communication for hearing impaired society. The

deaf and dumb make use of sign language to communicate which is difficult to interpret by the individuals who are not well-aware of it. Thus, there is a need of building up a device that can interpret the gestures into text and speech. The main goal of this project is to create a smart glove system that can continuously recognize sign language gesture and translate that into spoken words. It is a new technique called artificial speaking mouth for dumb people. The glove is fitted with a flex-sensor and a magnetometer to sense the movement made by fingers. A low power ARM Cortex-M4 microcontroller recognizes the movement by means of acquiring, processing and running a sensor fusion algorithm. The system translates the sign recognized into meaningful text.

3. RELATED WORK

This is an edited version of my first Hand talk project. HANDTALK 2 should be held in hand by the poor and based on the change of movements, the device will intelligently convert it to beeps (it can also be voice) and text. This message will be sounded by a beep and an LCD display. HANDTALK gloves detect motion through flexible sensors that detect different patterns of movement. The device can carefully detect any resistance and every movement of the hand. Currently, the device can only convert some, but depending on the success of this device, some more features may be added to this expressive system in the future. Technology has always been of great help to people with disabilities and has given them a helping hand so that they can lead a normal and healthy life like everyone else.

Employment problems faced by people with disabilities can be solved by our approach. So, in the work implemented, an intelligent microcontroller-based system using Flex sensors is developed capable of-

- Converting gestures into speech and text.
- Help a person check their home appliances if they cannot walk to the switchboard.

In current technology, wireless gloves are still unreliable because for wireless use, the gloves must have a built-in battery and an electronic control panel that makes the glove heavier and can cause

irritation. Therefore, wired equipment is preferred for patients and persons with partial disabilities.

Work on this project begins with the movement of the glove where the flexible sensor is attached and the sensor's value changes when the sensor is bent. Flexible sensor is another type of potentiometer attached to the fingers when we bend the figure, the value of the sensor will change. The change value of the sensor depends on the resistance and the bending angle applied when we bend the sensor at a particular angle we can see that the resistance value increases and hence the output decreases. On the other hand we can say it is like an inverse ratio as the resistance of the sensor increases at that moment the value of the output decreases and so we can project by taking advantage of this process .

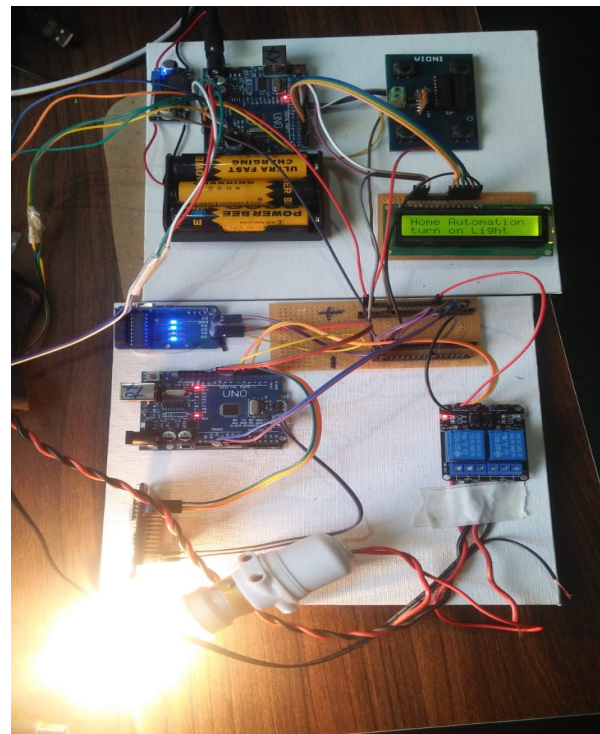
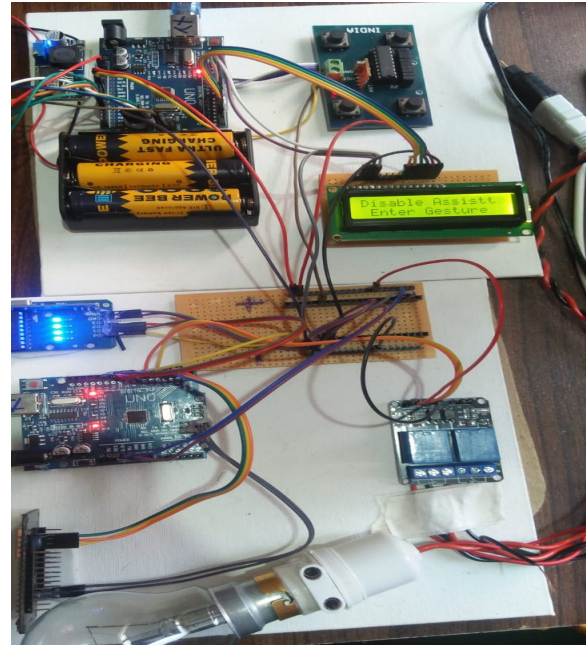
4. ADVANTAGES

- 1)Easy to operate: Anyone can operate it easily.
- 2)Easy to define gestures: we can add or define our own gestures.
- 3)Communication is possible in any language.
- 4)It requires fewer components so its cost is low.
- 5)Small in size and Light weight.
- 6)Flexible to users.
- 7)It takes less power to operate system Reliable and helpful to disable people

5. APPLICATIONS

- Useful for physically challenged people.
- Wireless communication area
- Wireless data transmission area.
- Hospitals
- Old age orphanage houses
- Useful for ill old people staying alone to send message in emergency
- Useful for disable people to handle home appliances easily without any help

6. RESULT



The work of this project start from movement of hand gloves where the flex sensors are attached, and the value of sensor changes when its experiences the bending.

The flex sensor is another type of potentiometer are attach to the fingers when we bend the figure the value of the sensor get changes.

The changing value of the sensor is depend upon the resistance and applied angle of the bending when we bend the sensor at some particular angle we can see the value of the resistance is increase and accordingly the output get reduced.

On the other way we can say that it's like a inversely proportional when the resistance of the sensor is increase at that instant the value of output decrease and accordingly we can make project by getting the advantage of this process.

After looking at the changing value of the output, the value of the get recorded by the Arduino and show from the display attached to it. Here the process gets started the Arduino gets different value from the sensor. The output value we can continuously see from the LCD which attached to it.

In the smart hand gloves intepreter we have different hand gestures which shows for specific output it depends on flex Sensors we have shown the hand gestures like turn on light turn on fan need water etc.it transmit and displays the message on LCD display as a result we are able to deploy the model and get output operation done according to input actions with the help of wireless communication .

7. CONCLUSIONS

A smart speaking glove for the Deaf is designed and implemented in four gestures. Each gesture specifies basic needs such as NEED WATER, NEED MEDICINE

, NEED FOOD, TURN ON the TV. The system is more reliable, efficient and easy to use, and provides a lightweight solution for the user compared to other systems offered.

This closes the communication gap between people with disabilities, people with physical disabilities and others. In this project, we faced

various challenges and tried to minimize the problem

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