Hand Gesture Based Voice Announcement System

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ABSTRACT

Micro controller primarily based speaking for dumb and deaf is meant to offer the signs, that are preloaded within the device. it's microcontroller-based device, which provides the alert sounds simply by using Hand gesture device, that are given some redefined messages like requesting water, wash area etc.., here the person will simply offer the predefined gesture that indicates the sign of Water(example) then the device sounds constant with some output volume. Microcontroller is that the heart of the device. It stores the information of wants of the person. in order that it will build use of knowledge keep whenever the person uses this device. This device helps deaf and dumb individuals to announce their necessities. By this the one that is close to will perceive their want and facilitate them. this protects the time to grasp one another and ease in communication. This device is meant to produce with a larger advantage manufacturing voice-based announcement for the users i.e., the user gets the voice that pronounces his want as and once it's needed. "Speech" and "gestures" are the expressions, that are largely utilized in communication between men. Learning of their use begins with the primary years of life. In human communication, the use of speech and gestures is totally coordinated. Machine gesture and language recognition is concerning recognition of gestures and language using gloves.

Keywords : Arduino uno, MEMS Sensor, Speaker.

I. INTRODUCTION

In recent years, for human computer interactions hand gesture recognition is used mainly. They play an important role in gaming and control application i.e. 3- D mouse, tele-robotics & virtual reality controlling. Rather than this, it is also used in those applications which aid the physically challenged community as dumb people. So, primary requirement for conversion of sign people to speech is Hand-gesture recognition. Hand-gesture recognition project is very useful for dumb-deaf people; it can also be used by the patients with half of their bodies paralysed as they couldn't speak & even for those patients who can only move their fingers.

II. LITERATURE SURVEY

L. Anusha, Y. Usha Devi "**Implementation of Gesture Based Voice and Language Translator for Dumb People** [1] Dumb persons communicate through gestures which are not understood by the majority of people. Gesture is a movement of part of the body, especially a hand or the head, to express an idea or meaning. This paper proposes a system that converts gestures given by the user in the form of English alphabets into corresponding voice and translates this English voice output into any other Microsoft supported languages. The system consists of MPU6050 for sensing gesture movement, Raspberry pi for processing, three button Keypad and speaker. It is implemented by using trajectory recognition

algorithm for recognizing alphabets. Raspberry pi generates voice output for the text in multiple languages using voice RSS and Microsoft translator. When tested, the system recognized A-Z alphabets and generated voice output based on the gestures in multiple languages.

Chinmaya R. Naguri "**Recognition of Dynamic Hand Gestures From 3d Motion Data Using Lstm And Cnn Architectures**" [2] Hand gestures provide a natural, non-verbal form of communication that can augment or replace other communication modalities such as speech or writing. Along with voice commands, hand gestures are becoming the primary means of interaction in games, augmented reality, and virtual reality platforms. Recognition accuracy, flexibility, and computational cost are some of the primary factors that can impact the incorporation of hand gestures in these new technologies, as well as their subsequent retrieval from multimodal corpora. In this paper, we present fast and highly accurate gesture recognition systems based on long short-term memory (LSTM) and convolutional neural networks (CNN) that are trained to process input sequences of 3D hand positions and velocities acquired from infrared sensors. When evaluated on real time recognition of six types of hand gestures, the proposed architectures obtain 97% F-measure, demonstrating a significant potential for practical applications in novel human-computer interfaces.
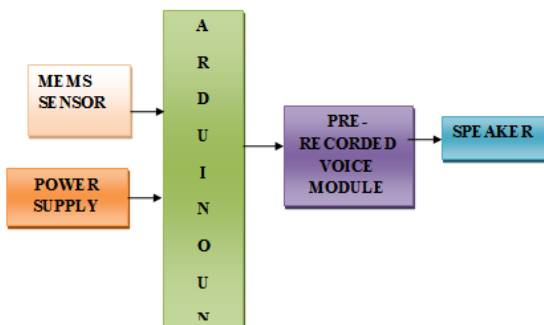
III. PROPOSED SYSTEM

Fig 1. Block Diagram

Microcontroller is that the heart of the device. It stores the information of wants of the person. in order that it will create use of knowledge keep whenever the person uses this device. This device helps deaf and dumb folks to announce their needs. By this the one who is close to will perceive their want and facilitate them. this protects the time to know one another and ease in communication. This device is meant to produce withbigger advantage manufacturing voice primarily based announcement for the users i.e., the user gets the voice that pronounces his want as and once it's needed. "Speech" and "gestures" are theexpressions, that are principally employed in communication between people at large. Learning of their use begins with the primary years of life. In human communication, the utilization of speech and gestures is totally coordinated. Machine gesture and signing recognition is concerning recognition of gestures and signing using gloves.

IV. OBJECTIVES

- It allows deaf and dumb people to communicate with others.
- It is a best device for these people to overcome their disability They can express their views to others.
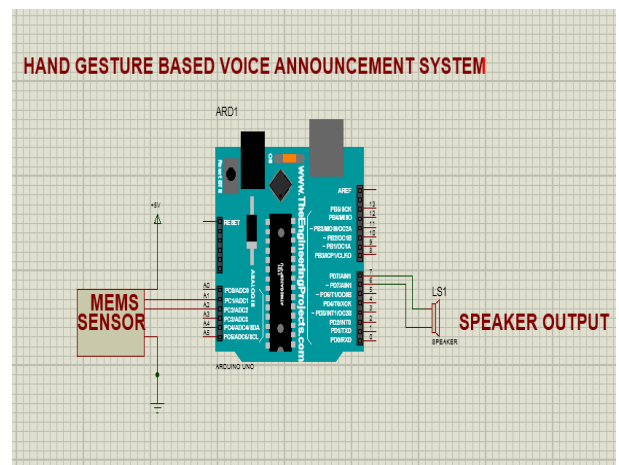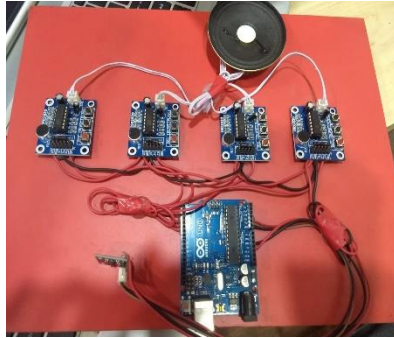
V. CIRCUIT DIAGRAM

Fig.2 circuit diagram of hand gesture based voice announcement system

VI. RESULT

ARDUINO UNO

MicrocontrollerATmega328

Operating Voltage5V

Input Voltage (recommended) 7-12V

Input Voltage (limits) 6-20V

Digital I/O Pins 14 (of which 6 provide PWM output)

Analog Input Pins 6

DC Current per I/O Pin 40 mA

DC Current for 3.3V Pin 50 mA

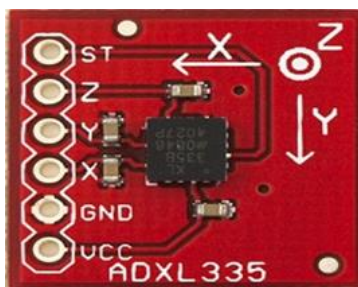Flash Memory 32 KB (ATmega328) of which 0.5 KB used by bootloader S

RAM 2 KB (ATmega328)

EEPROM 1 KB (ATmega328)

Clock Speed 16 MHz

MEMS SENSOR

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VII.CONCLUSION

The main aim of the project is to reduce the communication gap between deaf or mute community and normal people. This system is proposed to improve lifestyle of dumb/ deaf persons. This project is also favourable for degrading the communication difference between the blind person and the dumb person. All over the project is effective and efficient because it is using the ARDUINO UNO microcontroller and voice module. This paper is helpful for the industry of people working in the area of designing systems based on microcontroller.

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