VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Gnana Sangama, Belgaum – 590002 KARNATAKA

A

PROJECT WORK ON

"HAND TALK USING FLEX SENSORS WITH VOICE INDICATION-ASSISTIVE TECHNOLOGY FOR THE SPEECH AND HEARING IMPAIRED"

Carried out

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ABSTRACT

This project aims at creating an easy means of communication for the hearing-and-speech impaired who use American Sign Language to communicate. To materialize our objective, we have implemented embedded system technology. We have used micro-controller 8051 and programmed it to get the output. The main objective is to convert the gestures of the fingers into text and speech.

First, to sense the movement of the fingers, we have attached flex sensor to each of the finger. Depending on the bend, the resistance of the flex sensor varies. This change in resistance leads to variation in the voltage. This voltage is an analog signal. Before giving the voltage to the micro-controller, we convert the analog signal to digital signal using Analog to Digital converter.

Further, the signal is then processed by the micro-controller according to the code that is burnt on to it. The code implements the look-up table to get output corresponding to the angle of bend of the flex sensor. Sending the output from the 8051 is done through RS232 serial port.

The output is seen on the terminal as text. This text is converted into speech using a text-to-speech converter. The final output is a speech signal.