

ABSTRACT FOR ITSP

➤ **Team Name-** Red Devils

➤ **Project Title-**GestureTalk

➤ **Implementation Steps**

Brief Idea- A glove based system that converts gestures into letters which will be displayed on an external screen (laptop).

Rough Timeline

Week 1 - Research and development of glove design.

Week 2 - Arduino Circuit Completion

Week 3 - Gesture Input and Transfer of data to laptop + XBee

Week 4 - XBee + Conversion of data to letters/words. (Processing)

Week 5 - Troubleshooting and if time permits, conversion to speech/voice.

➤ **Components Required:**

Arduino Chip (2), XBee (2), Glove Design, Touch Switches, USB Cord, FTDI Chip.

➤ **Approximate Budget-** ₹5000

➤ **Learning Expectations-** Arduino Coding, Use of radio modules, Text to Speech Conversion.

➤ Explanation of idea :

We will be using 5 touch switches placed at the joint of each finger. Each switch has two modes, on and off; thereby 5 switches in two states give rise to 32 different possibilities. Each such configuration of switches (say 01100=off,on,on,off,off) will correspond to a gesture and subsequently a letter of the alphabet.

There will also be a gesture (a particular configuration of switches) that would indicate the end of a word. Most probably the break word gesture will be given the simplest of gestures.

After the above first step, the next step would be to feed the Arduino with all these gestures; after which the signal would be transmitted via radio module to the Arduino connected to PC.

This signal would then be used to display the word on the screen using some software (Not sure what will be used). A further modification of this project would be to skip the display part and directly convert the gestures into speech. This would include a speaker placed on the glove itself that outputs the word. To achieve this, we will use existing text-to-speech converters akin to those used in PCs and Android devices. This part is optional and will be worked upon if we have adequate time on our hands.

Note: No shape recognition/colour recognition technology is being implemented, thus eliminating the need of any special software.