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Silent Sound Technology A Gift for Dumb People

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Abstract—Silent sound technology can finish the noise pollution.Silent sound technology is the perfect solution for those people who have lost their voice but wish to speak on mobile phones .It is very useful for communication in crowded area like movie theater and alsoduring travelling on roads. It is developed at the "Karlsruhe Institute of Technology". This technology detect every lip movement and convert the electrical pulse into a sound signal and send to receiver neglecting all other surrounding noise. It is going to be really beneficial for the people who hate talking loudly on cell phone. Silent sound technology transfer the message without disturbing others. Another important benefits of this technology is that it allows to communicate to any person in the world as the electrical pulse is universal.

Keywords-*electromyography, digital image processing, silent sound,ultrasound transducer*.

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I. INTRODUCTION

Silent sound technology isthe best solution for thosepeople who lost their voice but wish to speak over phone .Silent Sound Technologyaims to notice every movement of the lips and converted them into sounds, which helps people who are unable to speak, and allow people to make silent calls without disturbing others or sounds. The cellphone would detect the movements of mouth by measuring muscle activity, then convert this into speech so that the person on the other side of the call can hear .This new technology is very helpful for old people.Even we can tell our PIN number to a trusted friend or relative. At the other side, the listener can hear a clear voice. I.E. movements can be immediately converted into the language of the user's choice different toner language.

II. LITERATURE REVIEW

[4]Kameshwarsharma, "Silent Sound Technology" –An End to Noisy Communication, Speech Communication Vol.1,Issue 9, November 2013.In International journal Trends and Technology .

Silent Sound technology aims to notice every movements of the lips and transform them into sounds, which could help people who lose voices to speak, and allow people to make silent calls without bothering others. Rather than making any sounds, handset would decipher the movements of mouth by measuring muscle activity, then convert this into speech that the person on the other end of the call can hear. So, basically, it reads the lips.

[1]Karishma.G.&Mohd.S.K.(January 2014). "SILENT SOUND TECHNOLOGY". International Journal of Computer Science & Information Technology.

It uses electromyography, monitoring tiny muscular movements that occur when we speak and converting them into electrical pulses that can then be turned into speech, without a sound uttered .When demonstrated, it seems to detect every lip movement and internally converts the electrical pulses into sounds signals and sends them neglecting all other surrounding noise.

III. METHODS

Native speakers can silently tell a massage in their language, and the receiver convert the translated massage in their language. It appears as if the native speaker produced speech in a foreign language currently it use electrodes which are attached to the skin.Native speakers silently talk a sentence in their language, and the receivers can hear the translated sentence in their language. It appears as if the native speaker produced speech in a foreign language.

There are two methods of Silent Sound technology. They are

A. ELECTROMYOGRAPHY

The electromyography is the process of to sense the tiny muscular movement and produce the electrical pulseswhich gives to the computer device .It will take muscular movement with the help of needle electrode or a needle containing two

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fines.*W*ire electrodes *are*inserted through the skin into the muscle tissue. Normal muscles at rest make certain normal electrical sounds, when the needle is inserted into them. Then the electrical activity is observedwhen muscle is at rest.Each electrode track gives only a very normal picture of the activity of the whole muscle.

Fig 1. Electromyography

B. Image Processing

It is the processes of converting digital data tape into a film image with minimum correction and calibrations .Large mainframe computers employed for interactive manipulation of the data.

Analysis of remotely sensed data is done using various image processing techniques and methods that are Analog image processing and Digital image processing.

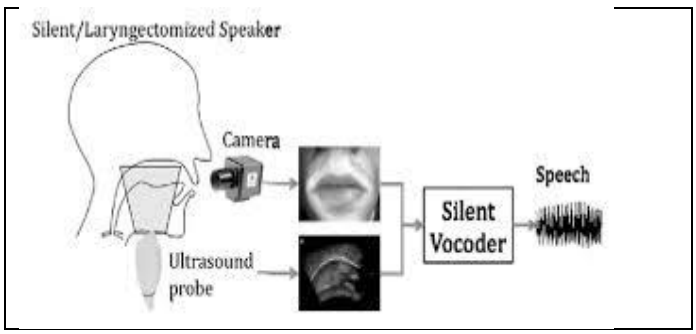

Fig.2. Image Processing

1. Analog Image Processing

Analog image processing technique is applied to hard copy data such as photographs or printouts. It adopts certain elements of interpretation, such as primary element, spatial arrangement etc.With the combination of multiconcept of examining remotely sensed data it allows us to make a verdict not only as to what an object is but also its importance. Apart from these it also includes optical photogrammetric techniques allowing for precise measurement of the height, width, location, etc. of an object.

2. Digital Image Processing

Digital Image Processing involves a collection of techniques for the manipulation of digital images by computer. Digital Image Processing undergoes three general steps a) Pre-processing Display b) Enhancement c) Information extraction

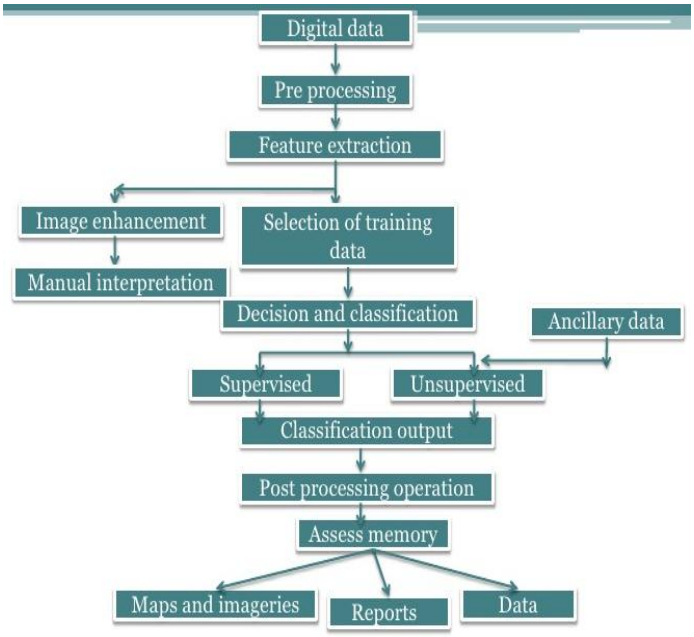

Fig.3 Flow Chart

a) Preprocessing

Pre-processing consists of those operations that prepare data for subsequent analysis that attempts to correct or compensate for systematic errors. Then analyst may use feature extraction to reduce the dimensionality of the data. Thus feature extraction is the process of isolating the most useful components of the data for further study while discarding the less useful impact.It reduces the number of variables that must be examined, thereby saving time and resources.

b) Enhancement

It improves the interpretability of the image by increasing apparent contrast among various features in the scene. The enhancement techniques depend upon two factors i)The digital data (i.e. with spectral bands and resolution) ii)The objectives of interpretation Common enhancements include imagereduction, image rectification, image magnification, contrast adjustments, principal component analysis texture transformation and so on.

c) Information Extraction

In Information Extraction the remotely sensed data is subjected to quantitative analysis to assign individual pixels to

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specific classes. It is then classified. It is necessary to evaluate its accuracy by comparing the categories on the classified images with the areas of known identity on the ground. The final result of these are converted to corresponding signals.

ELEMENTS OF IMAGE INTREPRETATION	
Primary elements	Black and white tone
	Color tone
	Stereoscopic paralax
Spatial arrangement of tone and color	Size
	Shape
	Texture
	Pattern
Based on analysis of primary elements	Height
	Shadow
Contextual elements	Size
	association

Fig.4 Element of Image Interpretation

IV. CONCLUSION

Silent sound Technology is one of the recent invention in the field of information technology. Engineers claim that the device is working with 99 percent efficiency. 'Silent Sound' technology aims tonotice every movements of the lip and converted them into sounds, which could help people who lose voices to speak, and allow people to make silent calls without disturbing others. Rather than making any sounds, mobile would decipher the movements of mouth by measuring muscle activity and then convert this into speech that the person on the other end of the call can hear.So basically it reads lips. It will be one of the innovation and useful technology and in near future this technology will be used in day to day life.

V. FUTURE SCOPE

In future itis possible that electrodes will be incorporated into mobile phones without having electrodes hanging all around face.Nano technology will be a historical step towards making the device handle.

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