Silent Sound Technology using Electromyography and Image Processing

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Abstract - The Silent sound innovation is a stunning answer for the individuals who had lost their voice yet wish to convey via telephone. This innovation fundamentally enables individuals to make calls without creating sounds. This innovation fundamentally recognize each lip development and inside proselytes the electrical heartbeats into sounds flags and sends them dismissing all other encompassing clamor. Quiet solid innovation is a non-discourse cooperation installed motor with an assortment of lip development. The blueprint history related with this innovation exhibiting the strategy or procedures utilized as a part of accomplishing quiet sounds, which are electromyography and picture handling. This innovation causes individuals to convey in uproarious places and to diminish clamor contamination to some degree. This innovation changes into the dialect of the client's decision and this interpretation works for dialects like English , French and German in any case, for the dialects like Chinese distinctive tones can hold a wide range of implications. This innovation essentially works with great effectiveness nearly to changes over into the separate dialect, not just the general population who influences call to get advantage from it and furthermore the recipient hear a reasonable voice. When one individual talks so louder which may irritates other individual who is likewise in a call, by this innovation we can get a simple answer for the unsettling influence happens because of sound contamination.

Keywords: image processing, picture handling, electromyography, phone.

I. INTRODUCTION

Noiseless speech innovation empowers discourse correspondence to occur when a discernable acoustic flag is inaccessible. By gaining sensor information from components of the human discourse generation.

While enhancing helps for the discourse incapacitated has been a target of biomedical building for a long time, the current increment of enthusiasm for Silent Sound innovation emerges additionally from a moment, very unique class of uses giving protection to cell phone discussions. It is broadly concurred cess - from the articulators, their neural pathways, or the cerebrum itself - it creates a computerized portrayal of discourse which can be orchestrated specifically, deciphered as information, or steered into an interchanges arrange.

That phones can be an irritation in gatherings or calm territories, and in numerous open places today their utilization is restricted. Frequently the mobile phone client, as well is awkward having the substance of his or her discussion wind up open. In the meantime, the capacity to handle a critical or imperative call at any area could in numerous occasions be an exceptionally helpful administration. This innovation, if noninvasive and sufficiently little to be joined into a phone handset, would resolve these issues by enabling clients to convey noiselessly, without irritating people around them. Given the quantities of PDAs being used today, the market for this innovation could conceivably turn out to be imperative if such an idea increased open acknowledgment.

Noiseless Sound innovation is an innovation that causes you to transmit data without utilizing your vocal lines. Quiet Sound innovation is produced at the Karlsruhe Institute of Technology, Germany. This innovation utilizes electromyography. It screens minor solid developments that happen when we talk and changing over them into electrical heartbeats that would then be able to be transformed into discourse, without a sound articulated. It is extremely valuable for those individuals who can't talk. By utilizing this innovation they can without much of a stretch associate with alternate people. The advantage of this innovation is that the audience can hear voice plainly. This innovation expects to see lip developments and change them into a PC created sound that can be transmitted over a telephone. Consequently individual on opposite end of telephone get the data in sound. The possibility of translating noiseless discourse electronically or with a PC has been around for quite a while, and was promoted in the 1968 Stanley Kubrick sci-fi film "2001-A Space Odyssey."

In the 2010 CeBIT's "future stop", an idea "Quiet Sound" Technology showed which intends to see each development of the lips and change them into sounds, which could help individuals who lose voices to talk, and enable individuals to make noiseless calls without troubling others. Rather than making any sounds, your handset would unravel the developments your mouth makes by estimating muscle action, at that point change over this into discourse that the individual on the opposite end of the call can hear. In this way, fundamentally, it peruses your lips. Along these lines individuals can chat on their mobile phones at the swarmed put without getting aggravated.

II. SYSTEM MODEL

"We as of now utilize cathodes which are stuck to the skin. Later on, such electrodes may for instance by consolidated into mobile phones," said Michael Wand, from the KIT.[7]The innovation opens up a large group of utilizations, from helping individuals who have lost their voice because of disease or mishap. The innovation can likewise transform you into a moment multilingual. Since the electrical heartbeats are all inclusive, they can be promptly changed into the dialect of the client's decision. "Local speakers can noiselessly articulate a sentence in their dialect, and the recipients hear the deciphered sentence in their dialect. It shows up as though the local speaker created discourse in an outside dialect," said Wand.

Figurel-Common people talking at same place without disturbance

III. PREVIOUS WORK

The Silent Sound Technology uses electromyography, monitoring tiny muscular movements that occur when we speak. Electromyography (EMG) is a technique for evaluating and recording the electrical activity produced by skeletal muscles. EMG is performed using an instrument called an electromyography, to produce a record called an electromyography detects the electrical electromyogram potential generated by muscle cells when these cells are electrically or neurologically activated.[5] The electrical source is the muscle membrane potential of about -90 mV.[6] Measured EMG potentials range between less than 50 pV and up to 20 to 30 mV, depending on the muscle under observation. The simplest form of digital image processing converts the digital data tape into a film image with minimal corrections and calibrations. Then large mainframe computers are employed for sophisticated interactive manipulation of the data. In the present context, overhead prospective are employed to analyse the picture. In electrical engineering and computer science, image processing is any form of signal processing for which the input is an image, such as a photograph or video frame; the output of image processing may be either an image or, a set of characteristics or parameters related to the image.

IV. PROPOSED METHODOLOGY

Electromyography is an electrodiagnostic solution procedure for assessing and recording the electrical movement created by skeletal muscles and the nerve cells control them.EMG can be actualized just when there is a manifestations of muscle or nerve issue. These indications may incorporate shivering, deadness, or unexplained shortcoming in the limbs.

The least difficult type of advanced picture handling changes over the computerized information tape into a film picture with insignificant remedies and adjustments. At that point huge centralized computer PCs are utilized for advanced intelligent control of the information. It is helpful for the people who lost their voice, maintain confidentiality of information when the people talking about in public.

It can be applied to military application to maintain confidentiality of data.

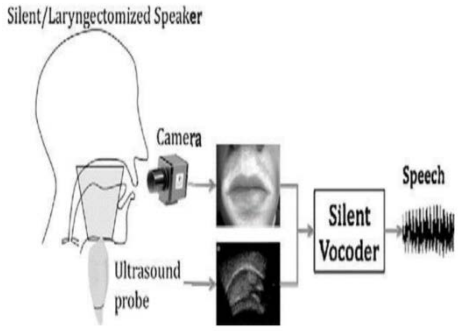

Fig. Electromyography mechanism

V. SIMULATION/EXPERIMENTAL RESULTS

TABLE 1. ELECTROMY OGRAPGY

Articulator ID	Articulator Name	Location
1	UL	Upper Lip
2	LL	Lower Lip
3	T1	Tongue Tip
4	T2	Tongue Body Front
5	T3	Tongue Body Back
6	T4	Tongue Back

VI. CONCLUSION

Presently a day's noiseless sound innovation is latest patterns. This innovation resembles "Talking without Talking". This innovation is extremely valuable in our day by day life numerous idiotic individuals got assistance from this innovation to enhance their way of life and pass on their message to other individual. Two procedure are utilized for this reason electromyography and picture handling both are useful to change over face appearance

and jaw development to sound. , which is help individuals who lose voices to talk and furthermore enable individuals to make noiseless calls without annoying others. Rather than making sound when talking in telephones which may aggravate individuals encompassed by us the hand sets are produced such that it peruses our lip and sends the voice to the someone else they are talking.

FUTURE SCOPES

Silent sound innovation offers route to a brilliant future to discourse acknowledgment innovation from basic voice summons to reminder managed via telephone this is genuinely conceivable in boisterous open spots.

Without having anodes hanging all around your face, these terminals will be fused into phones. It may have highlights like lip perusing in view of picture recognition^ and handling as opposed to electromyography. Nano innovation will be a mentionable advance towards making the gadget helpful.

With the majority of a large number of telephones available for use, there is awesome potential for expanding profit by sparing 'lost calls' - phone calls that go unanswered or uninitiated in light of the fact that the client is in a circumstance in which he or she can't talk - not simply in conferences, but rather regular circumstances. As indicated by look into, these 'lost calls' are worth $20 billion every year around the world. For the cell administrator, these are potential income that are at present being left on the table. At the point when these 'lost calls' turned out to be liable, and can be led without making a sound, there is an enormous potential for expanded benefits. Presently the exploration is going on innovation that can be utilized as a part of Office Environment as well.

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