A Review on Automatic Voice Recognition (Cry Sound) In Infants

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ABSTRACT

In this presents paper an infant emotion recognition system using cry sound. Different causes of infant crying are characterized by examining changes in the acoustic features that are extracted from acoustic signals in the cry segments.[1]. We analyze the infant's crying sound using the FFT technique and also GUI (graphical user interface) technique is used. Code is made from processed data (crying sound), there is two type of data:- (a) training data (b) testing data. We used a feature extraction technique that includes power spectrum, mean-average values then covert into mel frequency cepstral coefficents (MFCCS). In this research we study four parameter viz happy, emotional need, hungry, sad,etc. furthermore,it is a goodway to improve the quality of medical service in places which lack medical facilities[9].

Keywords: Cry signal, Feature extraction: MFCC, GUI (graphical user interface)

I. INTRODUCTION

This Crying is not just child behavior, but part of a the behavioral system in the human species that provides helpless child survival by causing others to meet basic need. Cry is the only communication link between an infant and his guardian.[4]. Crying is the child's first means of communication. These cries sound the same, but there are many differences between the cries of the two children. A mother can make her child different from others by crying. Infant crying contains a lot of information about the baby, such as hunger, pain, drowsiness or boredom. This includes 30 seconds of crying from one stimulus application. The recorded cry is served to an automated computer analysis system that digitizes scream and either presents a digital spectrogram of the scream[1]. Voice recognition is a popular theme in today's life. Voice recognition's programs are available which make our life far better.[10]. The invention of sound spectrographic techniques in the 1940s has made it possible to objectively analyse infantile vocalizations [9] these methods are graphical record sound at any time. Fast fourier transforms coefficient were determine and analyzedto detect the crying signal.

Cry Causes	Description
Pain	Cry due to pain (caused by vaccination, physical hurt)
Emotional Need	Cry when the baby wants to go back to parents
Environmental factors	change in environmental conditions.
Hunger	Cry when the baby is hungry

II. LITERATURE SURVEY

a. **Shivam Sharma and Vinay Kumar Mittal** "*Infant Cry Analysis of Cry Signal Segments Towards Identifying the Cry-Cause Factors*" Proc. of the 2017 IEEE Region 10 Conference (TENCON), Malaysia, November 5-8, 2017

b. **Lichuan Liu, Yang Li, Kevin Kuo** "*Infant Cry Signal Detection, Pattern Extraction and Recognition*"978-1-5386-5384 5/18/$31.00©2018 IEEE .this paper suggests a voice recognition technique to recognize a crying baby signals Modern signal processing methods are used. analyze a baby's cry with sound features over time-frequency domains in an attempt to classify each cry into Specific need.

c. **Shreya Narang1, Ms. Divya Gupta** "*Speech Feature Extraction Techniques: A Review*" *International Journal of Computer Science and Mobile Computing, Vol.4 Issue.3, March- 2015, pg. 107-114*. This paper presents the main developments in the field of speech recognition. This document covers voice recognition methods and provides a brief description of the four steps voice recognition methods are classified The purpose of this article is to summarize feature extraction techniques used in speech recognition.

d. **Ghada Zamzmi,Ruicong Zhi ,Rangachar Kasturi,Dmitry Goldgof ,Terri Ashmeade And Yu Sun** "*A Review Of Automated Pain Assessment In Infants:Features,Classification Task And Databases* "Ieee .In This Review Paper Study That Assess Infant's Pain At Constant Intervals By Observing Specific Behavioral And Physiological Signs Of Pain.

III. METHODOLOGY AND MATERIAL
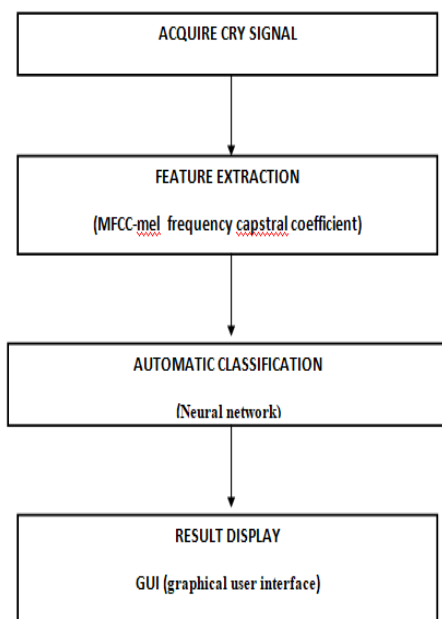
Cry signal

Infant crying comprises the rhythmic alteration of cry sounds (statements) and inspirations. Crying is part of the [7] acoustic data can be used to extract useful information about signal sources, the environment and background noise in the same way as any other mode.[10]

Feature extraction

Feature extraction starts from an initial set of measured data and builds derived values (features) intended to be informative and non-redundant, facilitating the subsequent learning and generalization steps, and in some cases leading to better human interpretations

- **Pitch information** :- pitch is a term we use to describe how high or low sound are . the frequency of a pitch is measured with a unit called hertz . pitch is important attribute of voice speech .therefore, estimating the fundamental frequency or the frequency of the tone (pitch information) is an important part of the analysis of crying babies (infants).

- **Mel frequency capstral coefficient :**-in sound processing, the mel-frequency cepstrum (mfc) is a representation of the short-term power spectrum of a sound, based on a linear cosine transform of a log power spectrum on a nonlinear mel scale of frequency.

Automatic classification(neural network):-

A neural network is composed of units (neurons), arranged in layers, that convert an input into an output vector. Each unit accepts an input, applies a function (often nonlinear) and then passes the output to the next level.

GUI (graphical user interface)
A graphical user interface (GUI) is a human-computer interface (i.e., a way for humans to interact with computers). major advantage of GUIs is that they make computer operation more intuitive, and thus easier to learn and use

IV. RESULTS

The perception of pain makes children cry, which can attract parents or guardians who can help reduce pain, several databases and compare the crying signals, which will be tested with the signals and the reason for the crying will be identified.

V. REFERENCES

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