A Survey on Animal Voice Recognition: Mood and Behaviour using Machine Learning Approach

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Abstract— Voice recognition frameworks turned into the fundamental applications for discourse recognition innovation, a creature affirmation framework bolstered creature voice design recognition rule has been created. The proposed creature voice recognition framework uses the zero-cross rate, MelFrequency Cepstral Coefficient and Dynamic-Time wrap joint calculations in light of the fact that the instruments for recollecting the voice of the genuine creature. ZCR is utilized for the begin point recognition of testing voice indicated the commotion might be expelled. MFC is utilized for the strategy for quality extraction wherever an extra consolidated and less excess of the delegate voice might be accumulated from the testing voice. while the voice order will be finished by abuse DT WRAP rule. At that point the voice coordinating is done to distinguish and characterize the creature seen by the framework. The program made and data noted demonstrates the recognition framework works.

Index Terms—Voice Remembrance; MFC; DT WRAP;

1. INTRODUCTION

Alternatively mentioned as speech remembrance, voice remembrance is a computer code program with the power to rewrite the voice. Voice remembrance is usually used as tool to write without using keyboard and also without pressing any buttons. Today, this is often performed on a PC with speech remembrance computer code-program. A few discourse recognition programs need the client to "train" the program to recognize voice so the machine will precisely change over the discourse to content. The principal discourse recognition gadget came in work in 1952 and remembered single digits spoken by a client (it wasn't PC driven). Today, discourse recognition programs are being used in a few ventures, Military, Correspondences, and private segment (for example hands free).

Types of voice remembrance systems are -

**Speaker depending technology**- The voice remembrance needs coaching before using, which needs user to browse a series of words and phrases.

**Speaker technology**- The voice remembrance package acknowledges most audio with no coaching or training.

**Breakoff speech remembrance**– Single word detection is done; the user has to stop after each word for its detection.

**Regular speech remembrance**- The voice remembrance can identify words at a normal rate of speaking.

**Natural language technology**- The speech remembrance not alone will perceive the signal however can do with comeback answers to queries or alternative queries that are being asked by learning on its own.
2. LITERATURE SURVEY

The fundamental goal for this creature voice-acknowledgment framework is to build up an innovation which will encourage the humankind to recognize the real creatures in order to comprehend about the creature better and complete a creature square. Animal’s square measure means having distinct vocal frequency and thus the comparing accurately with animal frequency to identify the animal. This suggests that the developed animal voice remembrance system is extremely helpful in safeguarding and wildlife protection of animals. This technique is additionally helpful once it is applied within the animal hospitals.

Animals comprise of a serious cluster of the largely multi-cellular and being organisms of the world of kingdom Animalia. In most of the animal’s square measure is dynamic, which suggests they will move and hence their frequencies differ. But there is technology used which narrow down their frequency and is stored in data bank

A. Surveyed Techniques

The planned creature voice rememberance framework utilizes the zero-cross rate, MelFrequency Cepstral Coefficients and Dynamic Time twisting (DT WRAP) consolidated calculations on the grounds that the strategy for perceiving the voice of the genuine creature.

ZC rate is employed for the top purpose detection of testing voice and end is determined. MFC is employed for the method of quality extraction and redundant signals can be disregarded. Whereas the voice pattern segregation is to be done by DT WRAP rule.

3. METHODOLOGY

A. End point Determination:

First after getting a sample signal is to find the start and ending point of the voice sample. The basic working principle for this is to eliminate the silence from start and end of the signal. For this method, the tip purpose detection algorithmic program is used with the zero-crossing rate.

ZC rate also tells the number of times the sound signal has changed. It is very useful in finding the occurrence of silence sound.

B. Quality Extraction:

For the quality extraction of any voice flag MelFrequency Cepstral Coefficients (MFC) is used. The point of this calculation is to concentrate and take key purposes of a voice demonstrate and furthermore make it less excess. The MFC is also used to cap off the high and low band frequency using band pass filters. It is used to make the signal more ready for pattern matching at later stages.

![Fig. 1: Computation of Voice Recognition](image)
Process A: Blocking
The voice signal is divided and is passed through low and high band pass filter which further makes the signal blocks or frames.

![Figure 2: Animal Voice (a) original waveform, (b) waveform after filtration](image)

Process B: Fast Fourier Transform
This is used on each frame to convert samples from time domain to frequency domain. N-samples are used.

Process C: MelFrequency Cepstrum
This is utilized to change over FFT shaped to Mel range. At that point at long last Mel range is changed over back to time area and the result is called MelFrequency Cepstral Coefficient.

C. Pattern Segregation:
After the quality extraction method, subsequent method is to match two signals so as to do the verification. Be that as it may, the voice flag could likewise be differing as far as speed or time chart while contrasting with reference voice show. In this way, these 2 signs ought to be adjusted in order to
anticipate the best match between them. This technique is named as the Dynamic Time contortion algorithmic program.

During Pattern segregation the original voice signal is compared with trained voice signal model.

D. Training Voice Model:

For any pattern matching there should a reference, in this the reference voice model is trained to the machine. The machine is trained on particular frequency and machine is trained on a reference voice signal. Higher the frequency more time it will take to train.

\[
\text{Time (48000 Hz)} \gg \text{Time (1000Hz)}
\]

The sample voice signal is then compared to the trained machine reference signal and match percentage is calculated against every reference voice model. The best match is the reference signal with highest match percentage.

Note: 1 Hertz (Hz) = 1 cycle of signal along x-y axis.

4. CONCLUSION

An animal acknowledgement system supported animal voice pattern remembrance formula has been developed. It supported the observational results from the program developed, they used ZC-Rate formula for the determination of endpoints and is done by removing silence from the voice signal. The voice model is made clear of any unnecessary signal and quality extraction is done using MFC formula. Finally, after the quality extraction method, subsequent method is match two signals so as to do the verification. Notwithstanding, the voice flag could likewise be changing as far as speed or time diagram while contrasting with reference voice demonstrate In light of the end, the general test results demonstrate that the created framework worked legitimately.

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