

Secure Online Voting System Using Voice Activity Detection Algorithm in Biometrics

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Abstract:

This paper concentrates on biometric based electronic voting machine. Biometric is utilized to recognize the individual depend on upon their physiological and behavioral characteristics. We utilize exclusive voice acknowledgment for ID. A voice acknowledgment framework is intended to distinguish a director voice. By using VB.NET programming for coding the voice acknowledgment, the executive voice can be confirmed. The key is to convert over the speech waveform to a sort of parametrically representation for further examination and preparing. An extensive variety of potential outcomes exist for parametrically speaking to the discourse motion for the voice recognition framework such as “V.A.D” (“Voice Activity Detection”). The input voice flag is recorded and PC will contrast the flag and the flag that is put away in the database by using VAD technique. The voice construct biometric recognition is based with respect to single word recognition. An administrator articulates the secret word once in the instructional course in order to prepare and put away. In testing session, the clients can express the secret key again with a specific end goal to accomplish acknowledgment if there is a match. By utilizing VB.NET programming, the yield can get either the client is being perceived or dismisses. From the consequence of testing the framework, it effectively perceives the particular client's voice and rejected other clients' voice. This paper deals with the exactness of the entire framework effectively perceiving the client's voice. It is a medium extent of the security level structure.

Keywords — **Biometrics, Voice activity detection (VAD) Algorithm, voice recognition.**

I.INTRODUCTION

Nowadays, India utilizes poll paper, voting booths and stamping. This is long procedure to distinguish the individual and further more give their vote. This is not secure strategy for voting. So this strategy is totally succeeded by “EVM” (“**Electronic Voting Machine**”). EVM utilizes just a single unit called as poll unit. To recognize the individual biometric framework is utilized. Here we use voice recognition for identification. Voice recognition having 94% efficiency. A whole lot of residential location and the businesses are the use of all styles of protection system to make sure their property is secured such as the usage of password and user identification/Pin for protection. Unfortunately, this type of protection machine is

not secured at all because the pin code may be hacked, the ID card may be stolen and duplicated. Based on the reasons, a whole new generation of safety machine must convey out to explosion back the confidential of the civilian approximately the safety machine. A biometric technology is the one which use the user features parameter as the password. The characteristic parameters of anybody is unique, even the users are twins. Therefore, the voice recognition system is safe for the administrator person. Voice is the maximum natural manner to communicate for humans. In this thesis, the problem of voice popularity is studied, and a voice popularity device is advanced for positive word being spoken. Voice biometric technology for authentication user is more useful and truthful. Because the biometrics feature if a

person are unique and belongs to the non-public until the user lifeless. It is useful for the user because not anything to be carried or remembered and would not scare the ID card being stolen or password being hacked. From a technological point of view, it's far feasible to distinguish between two extensive kinds of ASR: "DVI" ("Direct Voice Input") and "BVCSR" ("Big Vocabulary Continuous Speech Reputation"). These systems will analyze customers' unique voice and use it to exceptional music the recognition of that consumer's speech, ensuing in greater correct transcription. The voice recognition system carries two major modules which can be function extraction and feature matching. Function extraction is the technique that extracts a small amount of records from the voice sign that can later be used to represent every consumer at the same time as feature matching includes the step to perceive the unknown user by using evaluating extracted functions from admin

voice input with the ones from a fixed of known consumer. The speech signal and its characteristics can be represented in one-of-a-kind domain names which can be time and frequency area. A speech is the vocalization of a word or phrases that represent a single that means to laptop.

II. ALGORITHM USED IN THIS SYSTEM

Voice Activity Detection (VAD) is a front end preparing in all Speech and Audio handling applications. VAD or as a rule, recognizing silence parts of a discourse or sound flag, is an extremely basic issue in numerous discourse/sound applications including discourse coding, discourse acknowledgment, discourse upgrade, and sound ordering. VAD hearty to clamour is likewise a basic stride for "ASR" ("Automatic Speech Recognition"). A very much composed voice action indicator will enhance the execution of an ASR.

To assess a VAD, its yield utilizing test recordings is contrasted and those of a "perfect" VAD – made by hand-explaining the nearness/nonappearance of voice in the recordings. The execution of a VAD is generally assessed on the premise of the accompanying four parameters.

- FEC ("Front End Section"): cutting acquainted in going from clamour with discourse action;
- MSC ("Mid Discourse Cut-out"): cutting because of discourse misclassified as commotion;
- OVER: clamour translated as discourse due to the VAD signal staying dynamic in going from discourse movement to commotion;
- NDS ("Commotion Recognized as Discourse"): clamour translated as discourse inside a hush period.

I.A. BLOCK DIAGRAM

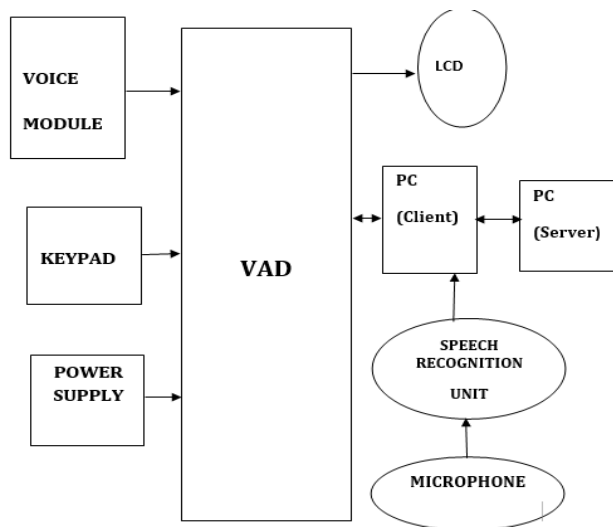


Fig1. Example of Block Diagram of Voting System

I.A. PERFORMANCE OF VAD

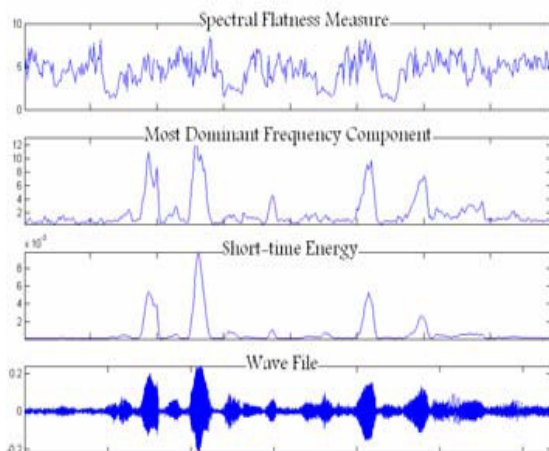


Fig 2.Feature values of clean speech signal

II.B. SHORT_TERM FEATURES

In the proposed technique we utilize three distinct components for every edge. The main element is the generally utilized here and now vitality (E). Vitality is the most widely recognized component for discourse/quiet location. Subsequently, we apply two different components which are figured in recurrence space. The second component is “**Otherworldly Evenness Measure**” (SFM). Ghastly Evenness is a Measure of the uproar of range and is a decent component in Voiced/Unvoiced/Hush location. In the proposed technique, these three components are connected in parallel to distinguish the voice movement.

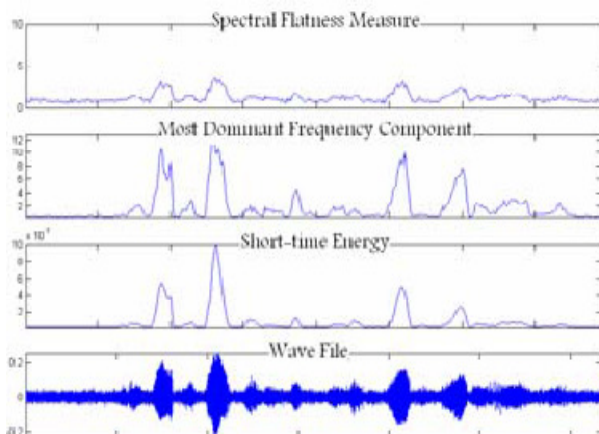


Fig 3.Feature values of speech signal corrupted with white noise

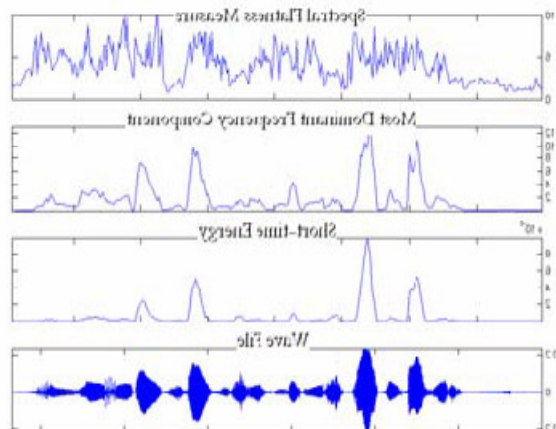


Fig 4.Feature values of speech signal corrupted with babble noise

II.C.The listeners have to give marks on the following features:

- Quality Measurement.
- Comprehension difficulty.
- Audibility of clipping.

These imprints, got by tuning in to a few discourse arrangements, are then used to figure normal outcomes for each of the elements recorded above, in this way giving a globaltester of the conduct of the VAD being tried.

II.D.VOICE ACTIVITY DETECTION ALGORITHM

Step1: Set Frame _ Size = 10ms and register number of casings (Num _ of _ Frames) (No outline cover is required).

Step2:Set one essential limit for each element {These edges are the main parameters that are set externally}.

- Primary Threshold for (Energy _ Prim Thresh).
- Primary Threshold for (F _ Prim Thresh).
- Primary Threshold for SFM (SF _ Prim Thresh).

Step3: For i from 1 to Num _ of _ Frames.

3-1 - Compute outline vitality (E(i)).

3-2 - Apply FFT on every discourse outline.

3-2-1-Find $F(i) = \arg \max(S(k))$ as the most prevailing recurrence segment.

3-2-2-Compute the conceptual estimation of Spectral Flatness Measure (SFM (i)).

3-3-Supposing that a portion of the initial 30 casings are hush, locate the base an incentive for E (Min _ E), F (Min _ F) and SFM (Min _ SF).

3-4-Set Decision threshold for E,F and SFM.

- $\text{Thresh_E} = \text{Energy_Prim Thresh} * \log(\text{Min_E})$.

- $\text{Thresh_F} = \text{F_Prim Thresh}$.

- $\text{Thresh_SF} = \text{SF_Prim Thresh}$

3-5-Set Counter = 0.

- If $((E(i) - \text{Min_E}) \geq \text{Thresh_E})$ then Counter +.

- If $((F(i) - \text{Min_F}) \geq \text{Thresh_F})$ then Counter +.

- If $((\text{SFM}(i) - \text{Min_SF}) \geq \text{Thresh_SF})$ then Counter +.

3-6-If Counter > 1 check the present casing as discourse else stamp it as quiet.

3-7-If current casing is set apart as hush, refresh the end vitality least esteem:

$$(\text{Hush_Count} * \text{Min_E_E}) + E(i)$$

$$\text{Hush_Count} + 1$$

3-8- $\text{Thresh_E} = \text{Energy_Prim Thresh} * \log(\text{Min_E})$

Step4:Ignore hush run under 10 progressive edges.

Step5:Ignore discourse run under 5 progressive casings.

III.PROPOSED SYSTEM

Biometrics is a technique for recognize a man in light of physical or behavioral qualities. Cases of biometric data used to recognize individuals incorporate unique finger impression, voice, face, iris, hand writing, and hand geometry. Biometric test is contrasted successively with an arrangement of put away cases to decide the nearest coordinate. The confirmation technique gives the best mix of speed and security. Remarkable development in electronic exchanges has underlined the requirement for a quicker, more secure and more helpful technique for client confirmation than passwords can give.

Biometric identifiers offer a few points of interest over customary and current techniques. Passwords can be overlooked, shared, hacked or unexpectedly seen by an outsider. By wiping out these potential inconvenience spots, just biometric innovation can give the security, with accommodation required for the present complex electronic division.

IV.ALGORITHM OF PROPOSED SYSTEM

Step1:First introduction of process.For ID the voter's information and their voice and voter points of interest are put away in PC. It implies registration of voter. Check if the voter is effective or not by utilizing their put away information.That is caught voice is contrasted and put away informationin PC. If the voter is not ready to give their vote or not enrolled, then message is show the individual is invalid on.

IV.A.WORKING

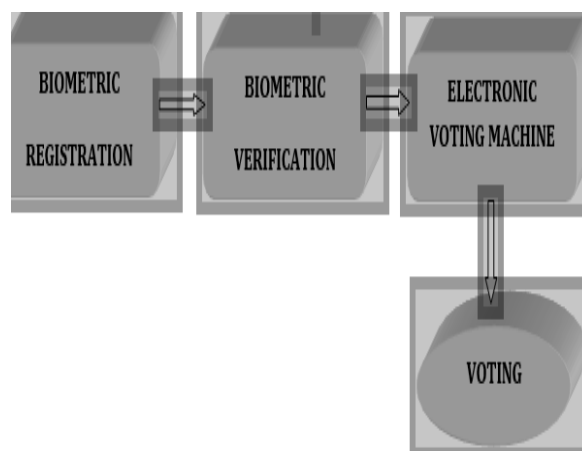


Fig 5. Working of Biometric System

IV.B.LCD

Step2:If voter is real, at that point go successive stage. Check if the voter has as of now voted or not. On the off chance that he has officially given his vote, at that point message is shown that he has as of now voted and is kept from voting in support of the second time. Else, if the applicant is voting infavour of the first run through, at that point

he is permitted to vote. Voter can indicate their vote. Result is put away on PC and show the outcome on LCD show after finishing of finish voting.

IV.C.EASY TO USE AND EXPAND

Voice module can catch voice the and change over it into computerized frame and put away carefully in the PC. VB.Net coding is utilized at the putting away and matching reason.

V.CONCLUSIONS

The voice recognition algorithm is developed by using VAD method to extract the feature of the voice signal. The reference voice is being stored in training phase and compare with the voice in testing phase to match the both results. The system is successfully recognizing the authenticate user's voice and rejected all the others impostor's voice. The output result is divided into two categories which are accepted and rejected. If accepted, the Arduino will activate the voting is received. If the output is rejected, the Arduino will remain the voting is not received and the buzzer will alarm for 1 second.

VI.ACKNOWLEDGEMENT

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VII. SUMMARY

To build up the voting framework, through the proposed framework propelled **E-VOTING** is being given by utilizing voice acknowledgment. However, in a considerable lot of the cases the incapacitated people can't see the vote poll, so to acquire the vote from these individuals additionally voice acknowledgment framework is added to the proposed framework. As the framework is versatile we can move it to the town territories where then the general population won't need to climb to the base stations to make their important choice. The got information of voters is checked with the information put away at the base station. After confirmation the voter can make the choice. At that point the vote is store to the base station, which enhances the security and require less time when contrasted with the past voting frameworks.

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