

# **Dedication**

For my Family my parents, brothers & sisters for their constant love, continuous support and encouragement, am really thankful to them.

For my kids Rawan , Leen & Waheed and to my husband Special thanks who has been the wind beneath my wings until I completed this work.

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I am making this project to increase my knowledge and thanks again to all who helped me.

# Abstract

Biometric technology is fast gaining popularity as means of security measures which, helps to reduce cases of fraud and theft due to its use of physical characteristics and trains for the identification of individuals. Since the most popular methods of keeping information and resources secure are to use password and User ID/PIN protection. These schemes require the users to authenticate themselves by entering a "secret "password that they had previously created or were assigned to. These systems are prone to hacking, either from an attempt to crack the password or from passwords which were not unique.

A Biometric voice Identification system is the one of the user's "voice" becomes the password/PIN. Voice characteristics of an individual are unique and therefore can be used to authenticate a user's access to various systems, the rate and pitch of each pronounced vowel is not the same. This poses the major concern for voice identification systems that is how to account for the variations in one's voice, each time the voice identification occurs. Furthermore, they tend to have a high false reject rate because of background noise and other variables.

Robust reliable voice identification system (VIS) (MATLAB software) was designed in this project. The system able to identify speaker by their voice through two major phases; training or enrollment phase and identification or testing phase , in training phase, features of speech signal will extract and store as a reference features.

In the identification phase the same features will extract from an input utterance of the speaker whose identity will be determined, then the decision will be taken according to the matching result between the reference template .and the template derived from the input utterance

Results will display in connected circuit, green led will light in matching .case and the red one accompanied with buzzer beep if not matching

## مستخلص البحث

تقنية التعرف على الهوية عبر خصائصها حيويًا تكتسب شعبية متزايدة كوسيلة أمنية للحد من حالات الغش والسرقة وذلك لإستخدامها الخصائص الفيزيائية للأفراد لتحديد هوياتهم مقارنة بإستخدام كلمة السر واسم المستخدم؛ الطريقة السائدة في مجال حفظ المعلومات وتأمين الموارد والتي تتطلب من المستخدمين إدخال كلمة السر التي تم تعيينها أو انشائها لهم مسبقاً للمصادقة ( الوصول ) وتعتبر هذه الانظمة عرضة للاختراق اما عن طريق كسر كلمة السر أو تخمين كلمة السر اذا لم تكن قوية او فريدة في حد ذاتها .

وبما ان الخصائص الصوتية للأفراد فريدة من نوعها بالتالي يمكن إستخدامها لتوثيق دخول المستخدم الى مختلف الانظمة بحيث يمثل الصوت كلمة السر في انظمة تحديد الهوية عن طريق بصمة الصوت . كما ان حساب التغيرات في الصوت الواحد يشكل مصدر قلق كبير لانظمة التعرف الصوتي التي تميل لمعدل رفض كاذب بسبب ضوضاء الوسط وكثير من المتغيرات . في هذا المشروع تم تصميم نظام تحديد هوية صوت قوي وموثوق به بإستخدام الماتلاب .

النظام يعمل على تحديد هوية المتحدث من خلال صوته عبر مرحلتين اساسيتين : مرحلة القيد ( التدريب ) ومرحلة تحديد الهوية ( الإختبار ) ، في مرحلة التدريب للنظام يتم أستنباط خصائص إشارة الكلام وتخزينها كخصائص مرجعية .

في مرحلة الاختبار أو تحديد الهوية يتم إستنباط خصائص مطابقة لتلك التي تم استنباطها في مرحلة التدريب للمتحدث الذي سيتم تحديد هويته بعد ذلك سوف يتم اتخاذ القرار بناءً على النتائج للمطابقة بين نموذج المتحدث المراد تحديد هويته وبين النماذج المرجع .

نتائج تحديد الهوية سيتم عرضها من خلال دائرة الكترونية موصلة ،  
 يضاء النور الاخضر في حالة التعرف على هوية الشخص ، اما في حالة عدم  
 التعرف على هوية المتحدث يضاء النور الاحمر متبوعاً بصافرة .

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