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Voice Authentication System

Shruti Dhanak[1], Prasad Humbe[2], Jay Kakade[3], Paras Chavan[4], Prof. Santosh Kale[5]
Department of Computer Engineering[12345]
NBN Sinhgad College of Engineering, Pune, India

Abstract: *With the increasing need for secure and convenient authentication methods in today's digital landscape, traditional password-based and biometric authentication systems have become commonplace. However, these methods have their limitations in terms of security and user experience. In this paper, we present a novel approach to authentication using voice-based recognition. We have developed an API utilizing Python Flask, TensorFlow, and Keras, which leverages advanced machine learning techniques to verify a user's identity based on their unique voice patterns. Through a comprehensive dataset collection and preprocessing process, we extract relevant features from voice samples and train a robust voice recognition model. Our experimental evaluation demonstrates promising results, showcasing high accuracy and performance compared to existing methods. Additionally, we provide implementation guidelines, enabling seamless integration of our voice authentication API into various programming languages and frameworks. We also address security and privacy considerations, highlighting the strengths and potential vulnerabilities of voice-based authentication. This research contributes to the advancement of authentication systems by providing a secure and user-friendly alternative to traditional methods, paving the way for wider adoption of voice-based authentication in real-world applications.*

Keywords: Voice, Flask, Authentication, recording, audio.

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