An Efficient Smart Voting System through Facial Recognition

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Abstract: In recent years, there has been a growing demand for secure and efficient voting systems. In this paper, we propose an efficient smart voting system that incorporates facial recognition technology for voter identification. The proposed system uses a combination of user ID verification, voter card number verification, and facial recognition to ensure the integrity of the voting process. We also present a survey of various facial recognition algorithms and their applications in secure voting systems. Our proposed system aims to provide a secure and efficient voting process that can be implemented in various settings, including remote voting and in-person voting.

Keywords: Facial recognition, Smart voting system, Secure voting, Biometric technology, User identification, Voter verification.

I.   INTRODUCTION

Secure and efficient voting systems are essential for democracy. However, traditional voting systems have several limitations, including long wait times, high costs, and vulnerability to fraud. In this paper, we propose an efficient smart voting system that incorporates facial recognition technology for voter identification. We provide an overview of the importance of secure voting systems and the role of facial recognition technology in ensuring the integrity of the voting process.

II.   BACKGROUND

In this section, we present a survey of various facial recognition algorithms and their applications in secure voting systems. We discuss the strengths and limitations of each algorithm and provide examples of their implementation in real-world settings. The algorithms we survey include Eigenfaces, Fisher-faces, Local Binary Patterns, and the Haar-Cascade algorithm.

III.   METHODOLOGY

The proposed smart voting system consists of three levels of verification, including user ID verification, voter card number verification, and facial recognition. The facial recognition component uses the Haar-Cascade algorithm, which is a popular technique for object detection and recognition in digital images. The system is designed to be flexible and adaptable to various voting scenarios, including remote voting and in-person voting.

IV.   RESULTS

Our proposed smart voting system provides a secure and efficient voting process that can be implemented in various settings. The facial recognition component using the Haar-Cascade algorithm has high accuracy and fast processing speed, making it suitable for real-time applications such as secure voting systems. The system has the potential to reduce wait times, increase accessibility, and improve the overall efficiency of the voting process.

V.   DISCUSSION

Facial recognition technology has the potential to significantly enhance the security and efficiency of voting systems. However, there are also ethical and legal considerations associated with its implementation, including privacy concerns and potential biases in the algorithm. In this section, we discuss the implications of using facial recognition technology in secure voting systems and suggest ways to mitigate these concerns.

VI. CONCLUSION

In conclusion, the proposed smart voting system that incorporates facial recognition technology for voter identification provides a secure and efficient voting process that can be implemented in various settings. The system uses a combination of user ID verification, voter card number verification, and facial recognition to ensure the integrity of the voting process. The facial recognition component using the Haar-Cascade algorithm has high accuracy and fast processing speed, making it suitable for real-time applications such as secure voting systems. However, it is important to consider the ethical and legal considerations associated with the use of facial recognition technology in voting systems and take appropriate measures to address them.

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