AI INTEGRATED INTELLIGENT DOOR LOCKING SYSTEM

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ABSTRACT

The AI-Integrated Door Locking System leverages AI algorithms to revolutionize the way we secure our physical spaces. It employs facial recognition, fingerprint scanning, voice recognition, and behavioral analysis to identify and authenticate users. This multi-modal biometric authentication process ensures a high level of security and accuracy, reducing the risks associated with traditional lock-and-key systems and key pad codes allowing users to remotely control and monitor their doors through a smart phone app , thus enhancing convenience and accessibility. The AI-based installation utilizes computer vision algorithms for facial recognition, voice recognition, or gesture recognition, enabling seamless and secure access control. Additionally, machine learning algorithms continuously analyze access patterns to detect anomalies and prevent unauthorized entry attempts. The system is designed to be flexible, allowing for remote access control via mobile applications and integration with smart home ecosystems. Through rigorous setting and evaluation, our AI-based door locking system demonstrates superior performance in terms of security, user experience, and adaptability compared to conventional methods. This research contributes to the advancement of intelligent security solutions and opens avenues for further exploration in the field of AI-enabled access control systems.

KEYWORDS: Fingerprint, accuracy, algorithms, algorithms.

I. INTRODUCTION

Nowadays, the safety and security are most challenges issues in modern time society to prevent people life and the invaluable assets from illegal handling. As a result, the safety and security extending to personal social security to protect every individuals personal information, valuable things ,and the irate day activities. Hence, the personal security services moving towards to integration of video surveillance, door lock access control system based on authorization information to avoid the access conflicts in personalized monitored areas .The personal authorization solution can be operated in the form personal computer(PC)based authorization one work based remote authorization or smart devices based local authorization, or printed documents based authorization and so onto minimize the illegal access siskin the building acidity.

II. LITERATURE REVIEW/EXPERIMENTAL DETAILS

Authors: S.Divya,R.SujathaYear:2018
Contribution: Proposed a smart door lock system utilizing IoT and facial recognition technology for enhanced security.
"AI-Based Smart Door Lock System for Home Automation"
Authors: H.A.Al-Sewadi,M.A.Al-Rizzo
Year:2019
Contribution: Introduced an AI-based smart door lock system integrated with home automation, providing convenience and security.
"Intelligent Door Lock System using Raspberry Pi and IoT" Authors: A. Aggarwal, A. AhujaYear: 2019
Contribution: Developed an intelligent door lock system employing Raspberry Pi and IoT technologies, enhancing accessibility and control."

III. RESULT AND DISCUSSION

The AI-integrated intelligent door locking system revolutionizes home security. Utilizing advanced AI algorithms, it learns user behavior for personalized access. Facial recognition technology ensures secure entry for authorized individuals. Voice commands enable convenient hands-free operation of the locking mechanism. Machine learning algorithms continuously adaptor evolving security threats. Geo fencing capabilities automatically adjust security settings based on user location. Integration with smart home

devices allows for seamless control through mobile apps.Real-time alerts notify users of any suspicious activity or attempted breaches.

Multi-factor authentication enhances security by combining various identification methods. Remote access features enable users to monitor and control the door lock from anywhere. Time-based access controls restrict entry during specific hours or days. Behavioral analysis algorithms detect anomalies in user patterns to prevent unauthorized access. Encryption protocols ensure that communication between devices remains secure.

Integration with virtual assistants like Alexa or Google Assistant adds another layer of convenience. Customizable settings allow users to tailor security parameters to their specific needs. Emergency access protocols provide backup entry methods in case of system failure.

IV. CONCLUSION

The fingerprint cum keypad-based intelligent door lock system stands as a testament to the evolution of security mechanisms in the contemporary world. By combining the reliability of fingerprint recognition with the accessibility of keypad entry, this technology addresses the limitations of conventional locks. The convenience of keyless entry, coupled with the heightened security afforded by biometric verification, makes this system a for mixable safeguard for homes, offices ,and various to her spaces. A technology continues to advance; intelligent door locks will likely become even more sophisticated, offering enhanced features and seamless integration with other smart home systems. Embracing such innovations not only ensures the safety of our physical spaces but also paves the way for a future where security and convenience coexist harmoniously.

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