

QIS College of Engineering and Technology

(Autonomous)

*Directorate of Project Skilling and Research*

**Literature Survey Summary**

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| --- | --- |
| **Project Title** | **AI Based Smart Security System** |
| **Batch Number** | **B5** |
| **Domain** | **AI applications** |
| **Roll No & Name of the student** | **22491A0581-E.V.J.Swaroop** |
| **Mentor Name** | **Dr D VIDYANADHA BABU** |
| **Mentor Signature** |  |

**Paper 1: "Home Automation Security System Based on Face Detection and Recognition Using IoT"**

**Authors:** [Sana Ghafoor, Muhammad Rizwan Tahir]  
**Journal/Conference:** [ResearchGate]  
**Year:** [2020]

**Summary:**  
In this paper The smart security systems reveals a focus on integrating facial recognition with IoT to enhance home automation security. The system's reliability is increased by combining face detection with IoT, allowing for real-time monitoring and alerts. Advances in AI and machine learning have significantly improved the accuracy of facial recognition, making it a viable solution for smart home security. Recent studies highlight the importance of optimizing algorithms for low-power devices, ensuring the system's efficiency and responsiveness

**Paper 2: "Enhancing Smart Home Security with Face Recognition using Deep Learning"**

**Authors:** [Asif Rahim , Yanru Zhong , Tariq Ahmad]  
**Journal/Conference:** [International Journal for Research in Applied Science & Engineering Technology (IJRASET)]   
**Year:** [2023]

**Summary:**  
Recent advancements in deep learning and IoT have significantly influenced facial recognition systems for smart home security. Research by Salim et al. developed a system with high accuracy but limitations in recognizing watermarked or tilted images. Ouanan et al. utilized CNN models for facial recognition in uncontrolled environments, achieving promising results despite ongoing challenges. Integration with IoT platforms, as explored by Hussain et al., enables real-time authentication with high accuracy.

**Paper 3: "Artificial Intelligence based Home Security System"**

**Authors:** [Prashant Katiyar, Satish Singh, Ankit Kumar, Mr. Gautam Kumar]  
**Journal/Conference:** [International Journal For Technological Research In Engineering(ISSN)]   
**Year:** [2021]

**Summary:**  
Recent studies on AI-based home security systems emphasize the integration of IoT, machine learning, and biometric technologies to enhance security. Katiyar et al. highlight how AI-driven systems, including smart cameras and sensors, significantly improve home security by recognizing faces, detecting intrusions, and automating responses. These systems also offer advanced features such as remote monitoring and control via mobile devices, making them more accessible and effective. The incorporation of AI in these systems addresses both security concerns and user convenience, demonstrating a significant advancement in smart home technology.

**Paper 4: "Home Security System with Face Recognition Based on Convolutional Neural Network"**

**Authors:** [Nourman S. Irjanto , Nico Surantha ]  
**Journal/Conference:** [International Journal of Advanced Computer Science and Applications(IJACSA)]   
**Year:** [2020]

**Summary:**  
Recent advancements in AI-based smart security systems focus on facial recognition due to its accuracy and non-intrusive nature. Convolutional Neural Networks (CNN), particularly the AlexNet architecture, have shown significant improvements.Challenges such as performance under varying lighting conditions remain, but future research aims to optimize data augmentation and enhance hardware capabilities. Applications extend beyond home security to include office access systems, demonstrating the versatility and potential of facial recognition technology.

**Paper 5: "A Smart IoT Security System for Smart-Home Using Motion Detection and Facial Recognition"**

**Authors:** [AKM Jahangir Alam Majumder]  
**Journal/Conference:** [ResearchGate/ 2020 IEEE 44th Annual Computers, Software, and Applications Conference(COMPSAC)]  
**Year:** [2020]

**Summary:**  
The literature on IoT-based smart security systems emphasizes the integration of motion detection and facial recognition technologies to enhance home security. Motion detection serves as an initial alert mechanism, identifying unusual activities, while facial recognition offers precise identification of individuals, thus reducing false alarms. Studies have demonstrated that combining these technologies improves the accuracy and efficiency of home security systems, particularly in smart homes. The system's ability to distinguish between familiar and unfamiliar faces adds an additional layer of security, making it a robust solution for modern home safety concerns .

**Reference**

APA Style

1. Sana Ghafoor, Muhammad Rizwan Tahir.(2020). ResearchGate. <https://www.researchgate.net/publication/341261991>
2. Asif Rahim , Yanru Zhong , Tariq Ahmad. (2023). International Journal for Research in Applied Science & Engineering Technology (IJRASET). <https://doi.org/10.22214/ijraset.2023.50243>
3. Prashant Katiyar, Satish Singh, Ankit Kumar, Mr. Gautam Kumar,(2021). International Journal For Technological Research In Engineering(ISSN).
4. Nourman S. Irjanto , Nico Surantha.(2020). International Journal of Advanced Computer Science and Applications(IJACSA).
5. AKM Jahangir Alam Majumder.(2020). ResearchGate/ 2020 IEEE 44th Annual Computers, Software, and Applications Conference(COMPSAC).