**A**

**Project Report**

**on**

**Security System using Face Identification and Verification and Fingerprint Recognition**

**Submitted in partial fulfilment of the requirement for the award**

**Of**

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE ENGINEERING**

**Under the Guidance**

**OF**

**Vaibhav Kant Singh**

**(Asst. Prof., Dept. of Computer Science & Engineering)**

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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, SCHOOL OF STUDIES, ENGINEERING & TECHNOLOGY, GGV**

**KONI, BILASPUR, CHATTISGARH**

**2022-2023**



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, SCHOOL OF STUDIES, ENGINEERING & TECHNOLOGY GGV KONI, BILASPUR, CHATTISGARH, 2022-2023**

**CERTIFICATE**

This is to certify that the Project entitled **“Security System using Face Identification and Verification and Fingerprint Recognition”** presented by **Yatindra Deo, Abhishek Kumar Singh** and **Yeramareddy Dhanush Sai Reddy** of **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING** in **School of Studies, Engineering & Technology, GGV** has been completed successfully. This is in partial fulfilment of the requirements of Bachelor Degree in Department of Computer Science & Engineering under Institute of Technology, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur, Chhattisgarh, 495009.

I wish him success in all future endeavours.

Signature of students

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**DECLARATION**

I hereby declare that the project “**Security System using Face Identification and Verification and Fingerprint Recognition”** which we have submitted in the partial fulfilment for the requirement for the award of the Degree of Bachelor of Technology in Computer Science & Engineering, Institute of Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh is an authentic work done during the session 2022-2023(June-Nov) Under the supervision of Mr. Vaibhav Kant Singh (Assistant Professor) Department of Computer Science & Engineering, Institute of Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh. I further declare that the work which have done in this project has not been submitted either in part or in full, for the award of any other degree or diploma in this institute

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**Abbreviation**

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Abbr.** | **Full Form** |
| 1. | OpenCV | Open-Source Computer Vision |
| 2. | DNN | Deep Neural Network |
| 3. | BLOB | Binary Large Object |
| 4. | SIFT | Scale Invariant Feature Transform |
| 5. | FLANN | Fast Library for Approximate Nearest Neighbours |
| 6. | KNN | K-Nearest Neighbour |
| 7. | RGB | Red Green Blue |
| 8. | CNN | Convolutional Neural Network |
| 9. | HOG | Histogram of Oriented Gradients |
| 10. | DCNN | Deep Convolutional Neural Network |
| 11. | WRN | Wide Residual Network |
| 12. | FFT | Fast Fourier Transform |
| 13. | PCA | Principal Component Analysis |
| 14. | LDA | Linear Discriminant Analysis |
| 15. | YOLO | You Only Look Once |
| 16. | SaaS | Software as a service |
| 17. | API | Application Programming Interface |
| 18. | BLPQ | Basic Local Phase Quantization |
| 19. | SGLCM | Scaled Gray Level Co-occurrence Matrix |
| 20. | SVD | Singular Value Decomposition |
| 21. | ED | Euclidean Distance |
| 22. | LBPH | Local Binary Pattern Histogram |
| 23. | DLA | Discriminative Locality Alignment |
| 24. | FLDA | Fisher's linear discriminant analysis |
| 25. | COCOMO | Constructive Cost Model |