ATTENDANCE SYSTEM BASED ON FACIAL RECOGNITION USING ENHANCED FASTER CNN ALGORITHM

A PROJECT REPORT

Submitted by

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In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE ENGINEERING

T.J.S ENGINEERING COLLEGE

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BONAFIDE CERTIFICATE

Certified that this project report "**ATTENDANCE SYSTEM BASED ON FACIAL RECOGNITION USING ENHANCED FASTER CNN ALGORITHM**" is the bonafide work of the following students.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

22/06/22

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ABSTRACT

This project deals with the design and implementation of "**Attendance system based on facial recognition using Enhanced Faster CNN algorithm**" This project involves building an attendance system which utilizes facial recognition to mark the presence, time-in, and time-out of Student/students. It covers areas such as facial detection, alignment, and recognition, along with the development of a GUI application to cater to various use cases of the system such as registration of new Students, addition of photos to the training dataset, viewing attendance reports, etc. This report explains the open CV libraries and Deep Learning based models and algorithms that have been used for facial detection and recognition. Explanation and use of Flask, along with a Local database for GUI application development and database management has been provided. This project intends to serve as an efficient substitute for traditional manual attendance systems. It can be used in corporate offices, schools, and organizations where security is essential. The report also includes chapters covering project planning, methodology adapted and failures. This attendance system which utilizes facial recognition to mark the presence, time-in, and time-out of Students. It covers areas such as facial detection, alignment, and recognition, along with the development of a web application to cater to various use cases of the system such as registration of new Students, addition of photos to the training dataset, viewing attendance reports, etc. This project intends to serve as an efficient substitute for traditional manual attendance systems. It can be used in corporate offices, schools, and organizations where security is essential. The purpose of this document is to specify software requirements of the Attendance Management System Using Face Recognition and Faster Region Based Convolutional Neural Networks. It is intended to be a complete specification of what functionality the Attendance Management System provides.

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CS8792 CRYPTOGRAPHY AND NETWORK SECURITY L T P C
3 0 0 3

OBJECTIVES:

- To understand Cryptography Theories, Algorithms and Systems.
- To understand necessary Approaches and Techniques to build protection mechanisms in order to secure computer networks.

UNIT I INTRODUCTION 9

Security trends - Legal, Ethical and Professional Aspects of Security, Need for Security atMultiple levels, Security Policies - Model of network security – Security attacks, services and mechanisms — OSI security architecture — Classical encryption techniques: substitution techniques, transposition techniques, steganography- Foundations of modern cryptography: perfect security – information theory – product cryptosystem – cryptanalysis.

UNIT II SYMMETRIC KEY CRYPTOGRAPHY 9

MATHEMATICS OF SYMMETRIC KEY CRYPTOGRAPHY: Algebraic structures - Modular arithmetic-Euclid"s algorithm- Congruence and matrices - Groups, Rings, Fields- Finite fields- SYMMETRIC KEY CIPHERS: SDES – Block cipher Principles of DES – Strength of DES – Differential and linear cryptanalysis - Block cipher design principles – Block cipher mode of operation – Evaluation criteria for AES – Advanced Encryption Standard - RC4 – Key distribution.

UNIT III PUBLIC KEY CRYPTOGRAPHY 9

MATHEMATICS OF ASYMMETRIC KEY CRYPTOGRAPHY: Primes – Primality Testing –Factorization – Euler's totient function, Fermat's and Euler's Theorem - Chinese Remainder Theorem — Exponentiation and logarithm - ASYMMETRIC KEY CIPHERS: RSA cryptosystem — Key distribution — Key management — Diffie Hellman key exchange - ElGamal cryptosystem – Elliptic curve arithmetic-Elliptic curve cryptography.

UNIT IV MESSAGE AUTHENTICATION AND INTEGRITY 9

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – SHA – Digital signature and authentication protocols – DSS- EntityAuthentication: Biometrics, Passwords, Challenge Response protocols- Authentication applications - Kerberos, X.509

UNIT V SECURITY PRACTICE AND SYSTEM SECURITY 9

Electronic Mail security — PGP, S/MIME — IP security — Web Security - SYSTEMSECURITY: Intruders – Malicious software – viruses – Firewalls.

TOTAL 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
- Apply the different cryptographic operations of symmetric cryptographic algorithms
- Apply the different cryptographic operations of public key cryptography
- Apply the various Authentication schemes to simulate different applications.
- Understand various Security practices and System security standards

TEXT BOOK:

1. William Stallings, Cryptography and Network Security: Principles and Practice, PHI3rd Edition, 2006.

REFERENCES:

1. C K Shyamala, N Harini and Dr. T R Padmanabhan: Cryptography and NetworkSecurity, Wiley India Pvt.Ltd
2. BehrouzA.Foruzan, Cryptography and Network Security, Tata McGraw Hill 2007.

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