IMAGE COPY MOVE FORGERY DETECTION

A PROJECT REPORT

Submitted by

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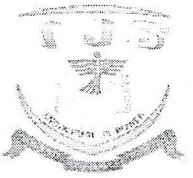
in partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING



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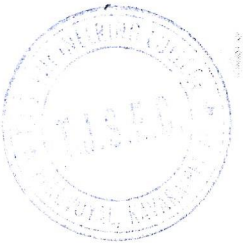

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BONAFIDE CERTIFICATE

Certified that this project report **"IMAGE COPY MOVE FORGERY DETECTION"** is the bonafide work of the following students.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

22/6/22

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ABSTRACT

The increasing popularity of the internet suggests that digital multimedia has become easier to transmit and acquire more rapidly. This also means that this multimedia has become more susceptible to tampering through forgery. One type of forgery, known as copy-move duplication, is a specified type that usually involves image tampering. In this study, a key point-based image forensics approach based on a super pixel segmentation algorithm and Helmert transformation has been proposed. The purpose of this approach is to detect copy-move forgery images and to obtain forensic information. The procedure of the proposed approach consists of the following phases. First, we extract the key points and their descriptors by using a scale-invariant feature transform (SIFT) algorithm. Then, based on the descriptor, matching pairs will be obtained by calculating the similarity between key points. Next, we will group these matching pairs based on spatial distance and geometric constraints via Helmert transformation to obtain the coarse forgery regions. Then, we refine these coarse forgery regions and remove mistakes or isolated areas. Finally, the forgery regions can be localized more precisely. Our proposed approach is a more robust solution for scaling, rotation, and compression forgeries. The experimental results obtained from testing different datasets demonstrate that the proposed method can obtain impressive precision/recall rates in comparison to state-of-the-art methods.

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CS8792	CRYPTOGRAPHY AND NETWORK SECURITY	L	T	P	C
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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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