CRYPTOGRAPHIC TECHNIQUE FOR SECURITY OF MEDICAL IMAGES IN HEALTH INFORMATION SYSTEMS

MEDICAL IMAGE DATA IS A CENTRAL PART OF DIAGNOSTICS IN TODAY'S HEALTHCARE INFORMATION SYSTEMS. WITH THE ADOPTION OF CLOUD COMPUTING APPROACHES IN THE HEALTHCARE SECTOR BY MOST HEALTH INSTITUTIONS, MEDICAL IMAGE DATA ARE NOW STORED REMOTELY IN THIRD PARTY SERVERS. PRIVACY, SAFETY AND SECURITY NEEDS TO BE GUARANTEED FOR SUCH DIGITAL DATA BY ENGAGING ENCRYPTION TO ENSURE CONFIDENTIALITY AND AUTHENTICATION METHODS TO ENSURE AUTHORSHIP. ENCRYPTION AND WATERMARKING TECHNIQUES OF DIGITAL IMAGE DATA IN THIS DOMAIN NEEDED TO BE COMPLETELY REVERSIBLE. THE ENGAGED ORIGINAL PLAIN IMAGE DATA IN THE CRYPTOGRAPHIC AND WATERMARKING METHODS SHOULD BE FULLY RECOVERABLE DUE TO THE SENSITIVITY OF THE DATA CONVEYED IN MEDICAL IMAGES. IN SATISFYING THE RECOVERABILITY AND THE AUTHENTICATION PROCESS IN THIS PAPER, WE PROPOSED A FULLY RECOVERABLE ENCRYPTED AND WATERMARKED IMAGE TECHNIQUE FOR THE SECURITY OF MEDICAL IMAGES IN HEALTH INFORMATION SYSTEMS. THE APPROACH WAS USED TO AUTHENTICATE AND SECURE THE MEDICAL IMAGES IN HEALTH INFORMATION SYSTEMS AND OUR RESULTS SHOWED TO BE VERY EFFECTIVE AND RELIABLE FOR FULLY RECOVERABLE IMAGES.

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