COPYRIGHT PROTECTION FOR WATERMARK IMAGE USING LSB

COMPUTER SCIENCE
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INTRODUCTION

THE RAPID RISE OF NETWORKING HAS MADE DATA INTERCHANGE THROUGH THE INTERNET SIMPLE, BUT IT HAS ALSO INCREASED THE POSSIBILITY OF DATA TAMPERING, UNLAWFUL COPYING, AND OTHER SECURITY RISKS. THIS NECESSITATES THE PROVISION OF DATA SECURITY. DATA TRANSMISSION OVER THE INTERNET IS SECURED VIA CRYPTOGRAPHY, DIGITAL WATERMARKING, AND STEGANOGRAPHY. DIGITAL WATERMARKING AND SEVERAL RECENT TECHNIQUES BASED ON LEAST SIGNIFICANT BIT (LSB) WATERMARKING ARE EXPLORED IN THIS STUDY TO SECURE DATA FROM VARIOUS ATTACKS.

OBJECTIVE

SOME COMPANIES SUFFER FROM INTELLECTUAL PROPERTY VIOLATIONS AND THE REMOVAL OF THE WATERMARK FROM SOME OF THEIR PRODUCTS AND THEIR AFFILIATION WITH THEM, IN ADDITION TO THE THEFT OF CONFIDENTIAL AND SENSITIVE INFORMATION AND ITS DISSEMINATION OR EXPLOITATION. ILLEGAL COPYING, MODIFYING, TAMPERING AND COPYRIGHT PROTECTION HAVE BECOME VERY IMPORTANT ISSUES WITH THE RAPID USE OF THE INTERNET. AS A RESULT, THERE IS A CRITICAL NEED TO CREATE TECHNIQUES TO ADDRESS ALL OF THESE ISSUES.

METHODOLOGY

WATERMARK IMAGE

ORIGINAL IMAGE

HIDE DATA IN IMAGE USING LSB

WATERMARKED IMAGE

RETRIEVE DATA

DATA
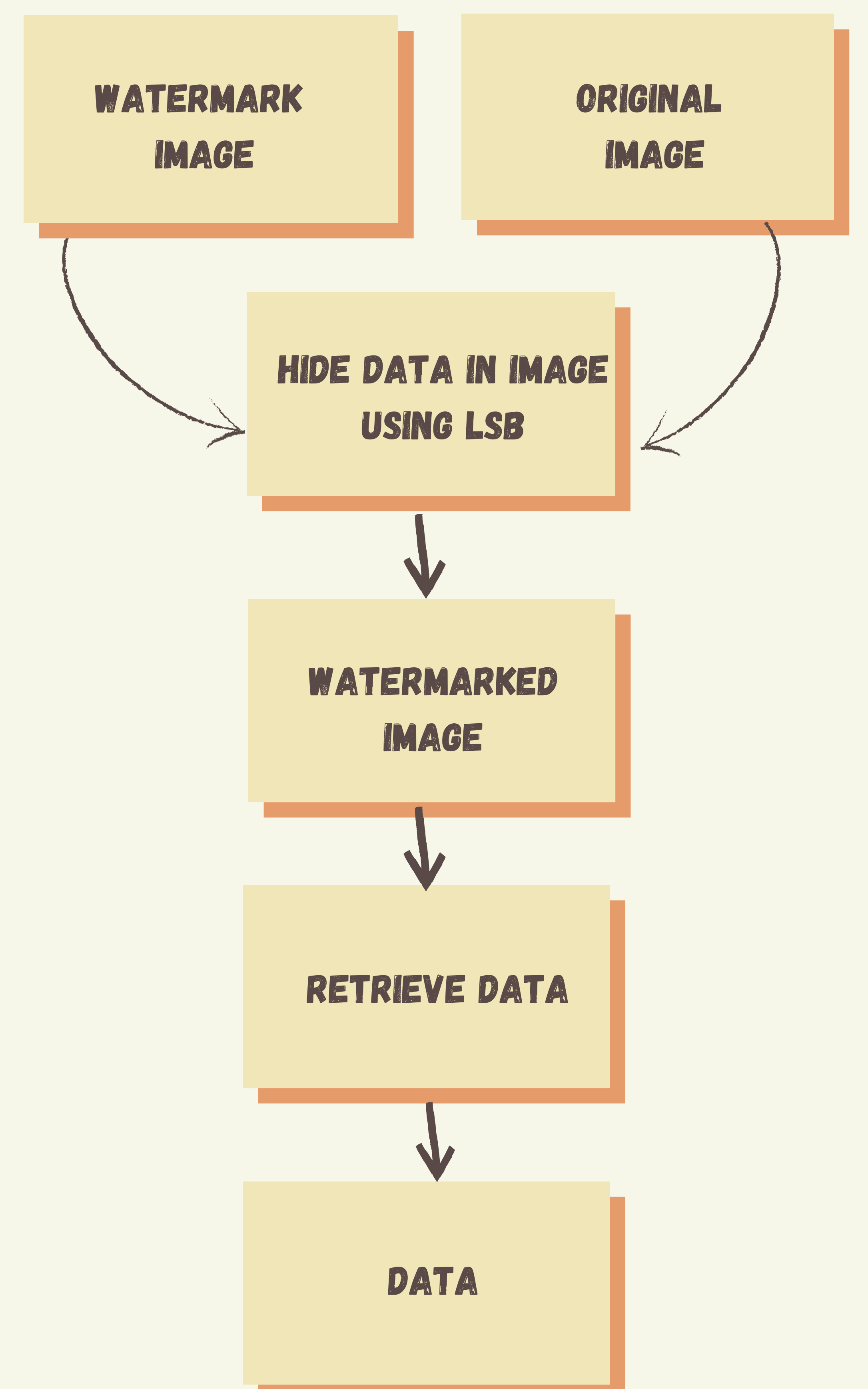
ANALYSIS

- AN IMAGE IS MADE UP OF PIXELS, AND EACH PIXEL CONTAINS 8 BITS, I.E. 1 BYTE.

- RGB IS AN ADDITIVE COLOR MODEL IN WHICH RED, GREEN, AND BLUE LIGHT ARE ADDED TOGETHER IN DIFFERENT WAYS TO REPRODUCE A WIDE RANGE OF COLORS.

- LSB HIDDEN WRITING (MINIMUM EFFECTIVE BIT).

- THE WATERMARK IS INSERTED IN THE LSB BECAUSE THE INFORMATION IS EXPRESSED IN THE LOW (ACCORDING TO A FORMULA), THEREFORE THE INFLUENCE ON THE IMAGE QUALITY IS MINIMAL.

RELATED LITERATURE

A NEW ROBUST REFERENCE WATERMARKING SCHEME BASED ON DWT-SVD

SELF-EMBEDDING WATERMARKING USING HALFTONING TECHNIQUE

BIT PLANE INDEX BASED FRAGILE WATERMARKING SCHEME FOR AUTHENTICATING COLOR IMAGE

CONCLUSION

THE METHOD USED IS LSB METHOD BY PYTHON SPYDER. IN THE FINAL DISCUSSION, WE FOUND THAT THE TECHNIQUE WE USED IS PROBABLY WORKING AND I GOT THE IMAGE MASKING IN TWO DIFFERENT FORMATS (PNG & JPG) AND WE FOUND A GOOD RESULT THAT PNG IMAGE MASKING IS BETTER. THIS IS BECAUSE PNG HAS MORE BITS AVAILABLE FOR THE WATERMARK TO CHANGE WITHOUT THE USER NOTICING. DUE TO THE POOR QUALITY OF THE JPEG IMAGE, A SLIGHT CHANGE IN THE IMAGE SIZE OR TRANSPARENCY MAY OCCUR AFTER THE WATERMARKING PROCESS SO WE PREFER TO USE THE PNG FORMAT OVER THE JPG FORMAT. IN THE COMING YEARS WE PLAN TO WORK ON DEEP LEARNING AND USE THE IMAGE ARRAY WITH MORE DIFFERENT FORMATS TO COMPARE IMAGE QUALITY BEFORE LSB AND AFTER LSB.

REFRENCE