

ABSTRACT

Technological developments in the health care system have a considerable impact. According to previous studies have shown that disease should be preventable if detected at an early stage. Telemedicine is one of the effective health care services used and designed to provide long-distance health care using electronic communication. With telemedicine in developing countries it can offer solutions, such as reducing overall medical costs, reducing transportation problems and time, and improving the quality of health care in the area. Telemedicine is used between doctors and patients, and can also be between general practitioners and specialist doctors for the exchange of health information. However, access and distribution of information technology can cause problems, especially related to security, one of which is on medical record data.

Telemedicine services contain patient information that must be protected so that it is not easily manipulated or attacked by irresponsible people. Therefore we need a system to protect the medical image, in this study a watermarking system with a spread spectrum method and BCH error correction codes will be built. The grayscale image as a medical image or the image of its host, then a binary image in the form of a logo will be inserted as the watermark image. The watermark to be inserted is distributed randomly into the spectrum of the host data as the cover. Then it is coded using BCH codes with predetermined test parameter values.

This Final Project research produces a fairly reliable system performance with BCH parameters (63, 16) with an average value of BER = 0 and PSNR value ≥ 58 dB. However, this system is less able to deal with rotate attacks of 1° , 3° and also scaling attacks when minimized. Because it produces a fairly high BER value. So the message inside is defect.

Keywords: *Telemedicine, Medical image, Watermarking, Spread Spectrum, Error Correction Codes, BCH Coding*