

ABSTRACT

Wireless Capsule Endoscopy (WCE) is the latest medical technology to detect diseases in the digestive tract including intestinal bleeding and cancer. WCE is a modern technique in performing endoscopic examination as early detection of Bowel Cancer (Colorectal Cancer). Previous method a conventional endoscopy is a method to view the inside of the body, including the intestine using a flexible tube that has a small camera on the end of the tube. WCE working system is to take photos and videos in the digestive tract with the help of a small capsule that transmits wirelessly to a screen outside the patient's body. After that the doctor will analyze the patient's condition based on the photos and videos directly.

The problems that arise WCE produce images that are sent directly to the monitor when shooting in the intestine of the patient. Accompanying that doctors have additional duties for sorting photos that have the potential for more mainstream to be analyzed first.

This thesis can help to answer these problems by providing an analysis of the detection system or detection system on the images are transmitted from the WCE. In this thesis developed a new scheme for detecting bowel cancer patients WCE users.

The new scheme using extraction Watershed Method characteristics, color space pre-processing and robust analysis by a physician, to detect potentially WCE image of small bowel cancer using k-Nearest Neighbor. Scheme developed is also able to provide increased performance with a scenario of up to 91.66% with the specific requirements that may be considered to be implemented in real conditions.

Keywords: Wireless Capsule Endoscopy, wavelet, images processing, small bowel, cancer detection