ABSTRACT

Heartbeat is a very important parameter in determining someone's health. From the heartbeat, we can know someone has health problems or not. Currently, heartbeat measurement is done by using pulse oximetry sensor which clipped on the fingertip or earlope. ECG may also be used to measure heartbeat, this tool requires patient to wear patches on the chest that can cause discomfort, it can even cause irritation.

Recently, a method named Eulerian Motion Magnification has developed. In previous study, this method has been applied to measure heartbeat by taking video of patient's face, then observed the color change in face when heart pumps blood to the head. In this final project, the method used to measure heartbeat by taking video of wrist. Micro movement in the video then enlarge so the pulse can be seen. After that, detection is performed on the pulse that has been seen. Then the results obtained in the form of number of pulses per minute in unit of BPM.

Testing results of the system in this final project shows that Eulerian Motion Magnification method produce the highest accuracy at 95,83% with 338 seconds of computing time. The results obtained at conditions of 1358 lux light intensity, video resolution of 1280x720 pixels, video capture distance of 10 cm, and frame rate of 25 fps.

Keywords : Pulse Oximetry Sensor, ECG, Eulerian Motion Magnification