**CERTAIN INVESTIGATIONS AND ANALYSIS OF PHYSIOLOGICAL SIGNAL FEATURE EXTRACTION AND MONITORING**

**FOR TELE-HEALTH APPLICATIONS**

**ABSTRACT**

The cardiovascular disease has created huge impact among the people with more than 40 years of age. Patients with heart diseases need more attention and they have to be monitored regularly in healthcare centers. Many physiological signal monitoring and processing devices have been developed in wireless healthcare monitoring applications. However these devices are in larger size and consume more power. Hence, there is a necessity to develop a better monitoring unit that can be used in tele-health applications. The monitoring devices are essential in today’s world to meet the increased demand for wireless health care monitoring. This research focuses on the systematic method for real time acquisition of an ECG and PPG signal and it’s processing and monitoring for tele-health applications. Physiological signal monitoring has gained attention recently among researchers for developing portable devices. Portable devices are essential in intensive care which is used for various biomedical applications such as Heart rate, pulse rate and blood pressure measurement. Heart rate and pulse rate parameters are important features for identifying heart arrhythmias which can be calculated from an acquired ECG and PPG signals. This research focuses on the filtering method for noise removal of ECG and PPG signal for better analysis.ECG and PPG signals are usually corrupted by motion artefacts, power line interference, and baseline wandering. The improper handling may lead to wrong clinical diagnosis. Therefore, proper recording and pre-processing of these signals are very much essential in diagnosis of various problems.This research also presents the real time peak detection of ECG and PPG signals. Peak detection is an essential method for measuring physiological parameters. Here the peaks of these signals are extracted using wavelet transform method. This research also proposes a method for blood pressure measurement from the features of PPG signal. Here, the blood pressure is estimated from the pulse transit time which is calculation of peaks from PPG and ECG signals. This research finally proposes wireless monitoring systemso that the doctors can see the patient parameters anywhere and provide health information to the patients. The advantages of wireless monitoring systems are to remotely acquire the data without need of cables and also this method need not disturb the patient’s life. The implementation and design of proposed wireless monitoring system can be done using graphical programming environment that utilizes less power and minimized area with reasonable speed. The advantages of the proposed work is very simple, low cost, easy integration with programming environment and gives continuous monitoring of physiological parameters.