Optical Heart-Rate Sensing Interface for Personal Computer

Prepared by: Chan Sin Von

ABSTRACT

Nowadays, people are thinking highly of the health care and along with the consequence of highly develop of technology, PC (personal computer), desktop, notebook, laptop are popular for every family, there are at least one set of personal computer with external hardware equipment's hold by each family, sometimes even each member of the family is holding one set of them. Personal computer nowadays is very intelligence in communicate with other electronic equipment, with only one of the communication ports for example serial ports, parallel ports or USB ports, it can be linked with many additional hardware easily depends on the requirement of the user.

Therefore it's common to develop a device which can only be used by adapted to computer in this new era of computer world. From that I decide my project title to cater the wants of people in health-care by multiple function of computer, produce an easy-use adapted optical heart-rate sensor to calculate the heart-beat per minute and illustrate the electrocardiogram on monitor of PC.

The concept of this Optical Heart-rate Sensor is based on the changing of blood density at each pulse of heart-beat. Every heart beat will pump out the blood to be sending through each cell in whole body in higher stress and return back to heart in lower speed, every time the blood density become high and then low considered one cycle, one time of heart beat.

My project report is mainly described and analyzes the external electronics circuit and the interfacing programs in Microsoft Visual Basic assembly language. Besides that the whole construction is explained, those material procurement or components required also recorded systematically. Of course, I did encounter many difficulties in completing this project therefore I have listed out the main problem I have faced along the progress of this project and the solution to resolve the trouble. At last, the Gantt chart is enclosed to assist explanation of the progress flow of my project. For clearer understanding of the characteristic of those involved components, datasheets are attached.