The purpose of this research is to apply Field Programmable Gate Array to detect compartment syndrome. The study's results show that applying FPGA enhances the accuracy of the measurement and owes many advantages, such as low cost, portable small-sized shape, and so on. In this study, we use the method of invasion. First of all, the injection in the body helps to release the liquid in the tissue out of the compartment. Then we used a pressure sensor, A/D converter, VHDL, and displayer to complete the detection and measure the pressure from the compartment. According to the results of this experiment, this instant detection system can assist doctors diagnosing compartment syndrome effectively and accurately.

Keywords : Compartment Syndrome ; Sensor ; Pascal's law ; FPGA

Table of Contents

第一章 緒論 1.1前言                    1 1.2研究目的與重要性

第二章 腔室症候群與診測原理 2.1腔室症候群簡介               5 2.2腔室症候群之診斷

第三章 研究方法與量測架構 3.1研究方法                  12 3.2腔室壓力量測架構

第四章 結果與討論 4.1系統建立                  34 4.1.1量測電路                34 4.1.2硬體描述語言撰寫           36 4.1.3電路在FPGA

第五章 結論與未來展望 5.1結論

 REFERENCES


