SIGNAL ANALYSIS OF HEART SOUND USING SPECTROGRAM

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ABSTRACT

The heart sounds of human in normal good condition typically contain two distinct sound of S1 and S2 that occur in each heartbeat cycle. The respective frequency and time latencies of each tone in heartbeat are important parameters to monitor cardiac function and diagnosis for any abnormality of heart functions. A conventional phonocardiogram analysis using stethoscope can be subjective and imprecise because of heart sound classification analysis depends on the physician interpretation. This paper proposes a spectrogram method which is one of digital signal processing technique to analyze heart sound pattern and to classify for its various diseases related.

CONTENTS

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND STUDY

The beatings of human heart were accompanied by the sound and electrical activities. The sounds produced from heart beating were called as heart sounds while the later electrical activity of heart was medically termed as electrocardiogram. A study or an analysis made on heart sounds is known termed as phonocardiography. In the modern phonocardiography research, it has been show that the heart sounds enclose large information which related to the heart problem [1]. Heart sounds basically are noises occurred during physical movement of the heart and every interaction within it, specifically due to the turbulence flow of blood created when the valves in the heart opening and closing [2,3].

Any imperfect in heart valves will cause an unusual heart sounds which can be diagnosed to identify which part of heart it sourced from. Thus the precise and reliable analysis needs to be done on to the heart sounds. In this study, spectrogram method which is one of the digital signal processing knowledge has been chosen to analyze the heart sounds. The method chosen are then developed using MATLAB software to do an automatic analysis of heart sounds data. Heart sounds data was recorded using electronic stethoscope.