

**HARDWARE DEVELOPMENT OF DOPPLER ULTRASOUND
BLOOD FLOW METER**

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ABSTRACT

The paper is about hardware development of Doppler ultrasound blood flowmeter. This ultrasound circuit consists of transmitter and receiver part. The experiment or measurement will be dealing with normal blood flow and factor that influent the blood flow in human being. This project is mainly focus on hardware development and monitoring the blood flow due to some factor that affects the blood flow.

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CHAPTER 1

INTRODUCTION

1.0 OVERVIEW

Doppler instruments often quantify the rate of movement or speed of the moving interfaces within the sound beam. Although some instrument uses the Doppler principle to detect motion, the manner in which the Doppler signals are acquired, processed and displayed distinguishes one typed instrument from other [1].

In Doppler instrumentation, a principle of Doppler Effect was used for making non invasive velocity measurement of blood flow. The Doppler Effect is a physical phenomenon in which an apparent change in the frequency of the sound is observed if there is relation motion between the source of the sound and receiver of the sound [1].

A sound wave propagating in a moving medium is affected by the velocity of the medium, and the sound scattered by a moving object is also affected by the velocity of the scattering object. Both phenomena can be used to measure blood flow velocity or flow rate in blood vessel [2].

In the blood flowmeter, transmitter sent out ultrasound pulse into body and observe the change in frequency that occur when it reflected or scattered from the target .The receiver instead of measuring how much energy is reflected back from the moving target in the body. Moving target returns that frequency shifted by an amount proportional to its velocity.