

**EXTRACTION OF ELECTRICAL SIGNAL FROM MICRO
RESONATOR OF
MICRO ELECTRO MECHANICAL SYSTEM**

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ABSTRACT

Extraction of Electrical Signal from micro resonator of Micro Electron Mechanical System (MEMS) is a way of measuring a come up results from microsensors. This project focuses on the development of a circuit to detect frequency signal from MEMS resonator sensor. The objective of this project is to design a test rig for MEMS array measurements by a construction of test measurements system depends on the main functions which is to detect resonating frequency MEMS signal and compare with frequency generator. Those MEMS resonator frequency be captured using electrical measurement such as transimpedance amplifier circuit and oscilloscope. The system is to sense the input current from microresonator to set a frequency but the problem is the current is too small. The system amplifies the current and does the test rig to compare better results. The problem is the MEMS resonator to the frequency which is needs to have a system for array. This is because a MEMS resonator not directly to applied voltage that interfacing the circuit. From the MEMS resonator frequency produced, it has to be measure and from the results, the system needs to array. The array system designed with the circuit which is built on PCB board and measurement setup for array. At the resonating frequency, both frequency signals will be added to each other and it will make the signal significantly bigger. The expected results will display resonating frequencies under different resonating sensor excitation. The frequency will be display within a range of 10Hz to 100 kHz at a supply voltage range.

TABLE OF CONTENT

CHAPTER		PAGE
	DECLARATION.....	i
	DEDICATION.....	ii
	ACKNOWLEDGEMENT.....	iii
	ABSTRACT.....	iv
	TABLE OF CONTENT.....	v
	LIST OF FIGURE.....	viii
	LIST OF TABLE.....	x
1.0	INTRODUCTION.....	1
	1.1 INTRODUCTION	
	1.2 BACKGROUND	
	1.3 PROBLEM STATEMENT	
	1.4 OBJECTIVE	
	1.5 SCOPE OF WORK	
	1.6 THESIS REVIEW	
2.0	LITERATURE REVIEW.....	7
	2.1 INTRODUCTION	
	2.2 MICRO ELECTRO MECHANICAL SYTEM (MEMS)	
	2.2.1 Definition of MEMS	
	2.2.2 MEMS Resonator	
	2.2.3 Structure of MEMS Resonator	
	2.2.4 Output Resonator Signal of MEMS	
	2.3 FREQUENCY RESPONSE	
	2.3.1 Amplitude Response	

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter views the background of the study, which is an introduction of the research. Then, it is followed by the problem statement, objectives and scope of the study. This chapter is an important part for the understanding of the project.

1.2 BACKGROUND OF STUDY

Micro-Electro-Mechanical Systems or MEMS, is a technology that in its most general form can be defined as miniaturized mechanical and electro-mechanical elements for example devices and structures that are made using the techniques of microfabrication. This vision of MEMS whereby [1] microsensors, microactuators and microelectronics