

CHAPTER I

INTRODUCTION

Signal generator is a device that beable to generate various electronic signals for different purposes. In audio-video related industry, signal generator acts as testing and measurement device for quality improvement and troubleshooting problem. Signal generator is also used in other situation such as educational based activity, testing, research and development, and experimental process. Various types of signal generators have been developed for different purposes and applications. This project focuses on types signals generator(Salina & Hamzah, 2010).

The great development in the field of computers led to a computer, an important invention in many applications,bereliable in many life areas, and given the importance of applications to generate multiple benefits used by computer signals. The subject is to design a signal generator PC with the help of broad applications in electrical and electronic circuits. The signal generation is very importantfor device to provide us the knowledge for evaluating the performance of electronic systems(Adel, 2000).

There are different types of signal generators and the signal generators have some characteristics. The first characteristic is reference frequency which has to be defined and stable.The secondcharacteristic is the capacity which should be free of distortion. Sending, receiving, and processing data as signs of electrical systems are the basis of the electronic control, communications, and computers. Most of these systems deal with analog or digital signals to perform the function which isdesigned by.

This study includes an electronic system components and prepares the necessary plans. These include to electronic components converting the digital signal which is generated by the computer to process analog signal conditioning by its reference filter and amplifier signal code (Denton, 2004).

1.1 Background

Oscilloscope is the most important electronic devices with multiple benefits in doing electrical measurements which fed into the device and the electrical signal amplitude. It changes by the time. Thus, it can be calculated as the frequency which be able to entered to two signals and comparing them in terms of voltage and frequency capacity in different phase.

The signal generation is crucial. It uses a signal generator for providing signals for well-known assess performance of various electronic systems.

The signal generation is crucial. It uses a signal generator for providing signals to assess the purpose of the various of electronic systems performance. It causes a reference device which is expensive and not readily accessible. It is also because of the extensive applications in the electrical and electronic circuits. Great development in the field of computers in many areas of life give the importance of applications for the signals to generate multiple benefits for the computer components within this system.

There are different types of signal generators and the signal generators have some characteristics. The first characteristic is reference frequency which has to be defined and stable. The second characteristic is the capacity which should be free of distortion. Sending, receiving, and processing data as signs of electrical systems are the basis of the electronic control, communications, and computers. Most of these systems deal with analog or digital signals to perform the function which is designed by.

Most of these systems deal with analog or digital signals which are designed for its performance function. Therefore, there is a need to form in addition to the specifications of these signals (amplitude – Phase – wave – boarding time, etc). these signals must be (Wave forms) which has different appropriate allowance. It means it is used to test the timing of the introduction of resorting. It refers to any system required testing and check up safety work output (Saud, 2002).

1.2 Problem Statement

An engineer needs to generate signals or make a signal acquisition. We can say that to debug electronic equipments, the first weapon for the engineer is a signal generator and an oscilloscope. Without these equipments, engineer can't do the work. During the time, the electronics and equipments measurements involved but the principle remained the same. we can see that today the measuring equipments are not cheaper than a few years ago. we can say that some times they are more expensive. And because of some of the errors that occur when recording to read oscilloscope device by engineers or technicians who oversee the writing of these readings. We often find mistakes and to avoid these mistakes and get correct results, we designed computer based on signal generator for widely applications in the electrical and electronic circuits.

1.3 Research Objective

This project aims is to use the computer, including the advantage of its possibilities and capabilities in multiple signal processing and signal control generation methods in many ways. It is used to generate various signals at frequencies different capacities. The advantage of its possibilities is one of the main reasons why we use it for computers.

Firstly, it increases the speed. it helps you to work faster. Secondly, it reduces the cost. It is because of introduction working to reduce the cost of work performed. Thirdly, it improves the quality. It works to complete mediated better.

We want to create an alternative method for signal generator and oscilloscope. Our main reason was the high price of measuring equipments. By this way, we want to come up with a solution which is able to replace signal generators and oscilloscopes. We study various types of signals alternating and representation of a computer in digital format and out through the port as an outlet for the output of digital data to generate signals and electronic control circuit for the printer parallel (LPT1) prevailing which is used to generate signals.

The necessary software requires to generate different types of signals, frequencies, and capacities. Those are as well as the different software required for the purpose of controlling the electronic circuit. It has been relying on a programmatic method depending on the language of Visual Basic.

In addition, this study concerns on the physical system requirements, analysis, and how to connect them with the computer and version control signals circle.

1.4 Contribution

- A. Interaction with information technology in the era of scientific and technological culture and contribution to the development of electric and electronic systems.
- B. The acquisition of manual skills in the use of measuring devices and build electrical and electronic circuits.
- C. The development in the field of electrical and electronic appliances.
- D. The computer usage in the electronic components in order to convert the digital signal which is generated by the computer into analog signals.

1.5 Thesis Organization

Chapter 1. Discussing about research introduction and background that contain about Oscilloscope. Oscilloscope is the most important electronic devices with multiple benefits in doing electrical measurements which fed into the device and the electrical signal amplitude. It changes by the time. Thus, it can be calculated as the frequency which be able to entered to two signals and comparing them in terms of voltage and frequency capacity in different phase, problem statement, research objective, contribution, and thesis organization.

Chapter 2. Discussing about definition of oscilloscope research literature review that contains about the oscilloscope of important hardware. It is used frequently as organs in the study of plant forms of waves, currents efforts, and measuring values. Those are as well as the capacity and frequency, quantity of electrical, value, and shape. It can also link these quantities in time on the screen. It is used in fault detection device in the radio and television and all electrical appliances in the laboratory in research and design cases, kinds of signals, classification of signal, digital signals, definition the computer, and some circuits such as operational amplifier and oscillators types. The principle of the oscillator work can be used in this system.

Chapter 3. Discussing about the research methodology. This study contains about an experimental study. This study includes electronic contents for systems and relevant diagrams preparation. Electronic contents consist of operation of transferring digital signal which is created by a computer signal which is adopted by filter and programming signal amplifier, programming part for the system, and general diagram for the system.

Chapter 4. Discussing about the result that contains in the above table and figure 4.3. It shows attempts to produce square waves. 11 (eleven) trials had been done in order to determine the waves expected. The input frequency applied in each

attempt varies, which is ranged from 50 Hz to 2500 Hz. Yet, each of the samples (n) has the same value, that is 30. Different output frequencies were gained in the attempts except the first, second, eighth, tenth, and eleventh attempts which both has input and output frequencies that show as they are. The square wave form constructed will be always of the same form. This is due to its consistent value of period (0.2 ms/cm) and amplitude (10V). When the period and amplitude do not change, the form of the wave stays the same, despite the different input frequency. This proves that input frequency only affects the wave length, not the form of the square wave.

Chapter 5. Discussing about conclusions and recommendations that have been through the stages of labor. It contains samples number, input of frequency, and sample time which influence clearly on the results which are got. If the samples numbers increase, the accuracy of wave increases. If the input frequency increases, the width of wave lessens. Because of the results which are got, it was drawn by drawing signal device. There are mistakes during this operation. These mistakes are measurement, accuracy of limit the points, or accuracy of drawing device.