AGGREGATE FREQUENCIES OF BODY ORGANS

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Abstract - In this paper, we explored the possibility of an average frequency of human body organs. We determine the average frequencies between two organs by MATLAB Simulation. Every cell, every tissue, and organs have its own frequency. On the basis of frequency, many stages have occurred i.e. happiness, fear, shame etc. In this, analog to digital converter is used to convert data into digital form. Fourier analysis converts a signal from its original domain (often time or space) to a representation in the frequency domain and vice versa. Spectrum analyzer gives the spectrum of organs.

Keywords - Body organs, frequency, spectrum, ADC.

I. INTRODUCTION

The human body is a symphony of sounds. Every chakra, every organ, every bone, every tissue, every cell has its own resonant frequency its own sound. However when an organ is out of time or out of tune with the rest, then the entire body is affected. This harmony leads to states of disease and disintegration. In this frequency plays an important role to identify the actual problem in the human body.

Let's take an example: to understand any person's thoughts and plans the frequency of human brain is exactly equal to the frequency of other person's human brain that is also known as thought transmission. This method is also implemented on blood and organ transplantation. The frequency of blood is equal to the frequency of another person's blood frequency in this many parameters are exists i.e. structure of blood, red blood cell pattern etc, then the transplantation of blood is a success. The frequency of blood is related to the frequency of organs but the blood contains the average frequency of organs because it passes every organ of the body. The frequency of organs and blood totally depends on Energy of the body. There are some energy states which are listed below:

1.1. Happiness
In happiness the energy of the body is high and the organs work very perfectly at a time the frequency of organs is on the top most level.

1.2. Sadness
In sadness, the energy of the body is almost low and the frequency of organ is on the low level.

1.3. Anger
In anger, the energy of the body is the move to the upper part of the body and the frequency of organs is divided into two parts: In the upper part(Heart ,lungs ,etc) the frequency of organ is high. In the lower part(Liver ,Kidney ,etc), the frequency of organ is low.

1.4. Fear
In fear, the energy of the body is behaving like as sine-wave (sometimes high, sometimes low).

1.5. Surprise
In the surprise, the energy of the body is high in the upper part(Heart, Lungs ,etc). So, the frequency of upper organs is high.

1.6. Shame
In shame, the energy fluctuates in every organ of the body.

II. LITERATURE SURVEY

Nivedita Daimiwal, M. Sundharajan and Revati Shriram (2014) [1] explain about the measurement of blood volumetric changes in the human body by PPG sensors the outcome of this analysis is a noninvasive continuous blood pressure measurements based on PPG signals. The amplitude of PPG signals was in the range of 100-200mV. PPG signal is used to detect blood pulsations in a finger and achieved an accuracy of (0.8±7)mm Hg and (0.9±6)mm Hg for systolic and diastolic pressure.
Takayuki Sato and Yasauki Watanabe (2013) [2] describe about the detecting of the peak frequency of an ultrasonic reflection spectrum was proposed & estimation the aggregate size of red blood cells the outcome of this experiment is the peak frequencies obtained in the diameters of 5, 10 and 20μm under the conditions of the suspension velocities of 105, 320 and 1050mPa·s according to this result it is effective for high sensitivity estimation of RBC aggregation.
Panos T. Pappas and Charles Wallach (1993) [3] elaborate the effects of pulsed magnetic field oscillations in cancer therapy the result of this experiment is the effects on tumor cell of a novel method producing extremely sharp pulses of very high-intensity magnetic field oscillations that have consistently proven more efficacious in tumor cell

destruction than similar therapeutic modalities using low power density.

Natasa Reljin, Yelena Malyuta, Yitzhak Mendelson, Chad E. Darling and Ki H. Chon (2016) [7] elaborate in his study about Detection of blood loss in patients by using time-frequency analysis of PPG signal.

W. Suwansin, P. Phasukkit, C. Pintavirooj and A. Sanpanich (2012) [8] describes about heat transfer and specific absorption rate of electromagnetic field in human body at the frequency of 915MHz and 2.45MHz with 3 dimensional finite element method the outcome of this analysis is the maximum temperature in each internal organ is different if a radiating frequency is changed in which 2.45GHz provides higher temperature accumulation and also specific absorption rate.

III. METHODOLOGY

A source of the signal or a sensor detects a signal, which is in analog form due to some environmental factors the signal is may be stable or not because environmental conditions affect the signal for signal amplification we use the analog amplifier when analog amplifier amplifies the signal. The signal is converted into digital form by analog to digital converter (ADC). Fast Fourier Transform is applied to the digital signal for domain conversion. The signal is implemented on a spectrum analyzer.

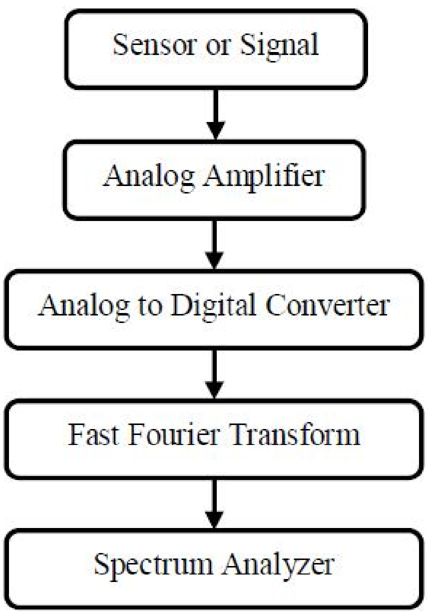


Fig.1. Block diagram for spectrum generation of a signal

3.1. Signal

The signal is a physical magnitude which contains some data and activities of any phenomena. The signal is categorized into two types:

1. Analog Signal: An analog signal is any uninterrupted signal for which the time varying feature (variable) of the signal is a representation of some other time varying quantity, i.e., analogous to another time varying signal.

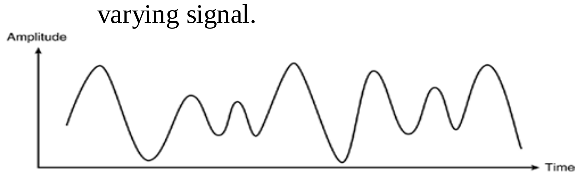


Fig.2. Representation of analog signal

2. Digital Signal: A digital signal refers to an electrical signal that is converted into a pattern of bits. Unlike an analog signal, which is a continuous signal that contains time-varying quantities, a digital signal has a discrete value at each sampling point. It has two states zero and one.

Fig.3. Representation of digital signal

3.2. Sensor

The sensor is an electronic device which detects physical property or a signal which is generated according to an environment and provides a specific response to it. By medical sensor, we analyze expect the frequency of the human body [3]. When a human body fevered in that case we use the thermometer to detect the temperature of the body. So, here thermometer works as a temperature sensor but the reason behind the detection is, the temperature has some energy along the energy, the temperature of the body increase or decrease. So, the energy has some frequency in that case the thermometer indirectly detects the frequency of the body in the form of temperature.

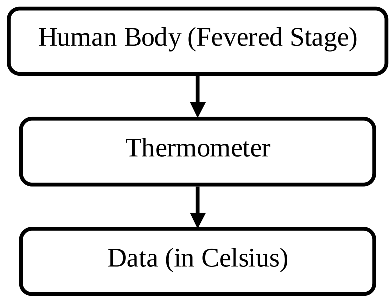


Fig.4. Data (in Celsius) ≈ Frequency of the body

3.3. Analog Amplifier

The amplifier is a device which is used to increase the strength of a signal. In this, we use a non-inverting operational amplifier for amplifying the signal.

3.4. Analog to Digital Converter

It is a converter which converts a continuous signal into the discrete signal. The discrete signal has two states 0 and 1. Zero states define the signal is low and One state define the signal is High. It may also stipulate mensuration such as an electronic device that converts an input analog voltage into a current to a digital number proportional to the magnitude of the voltage or current. It converts selected analog signals to digital signals.

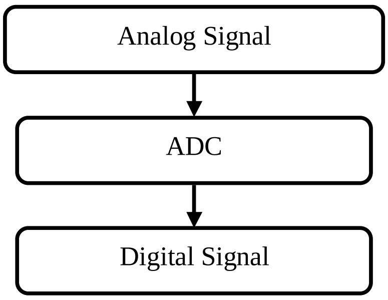


Fig.5. Block diagram of Analog to Digital Converter

3.5. Fast Fourier Transform (FFT)

A fast Fourier transform (FFT) algorithm computes the discrete Fourier transform (DFT) of a sequence or its inverse. Fourier analysis converts a signal from its original domain (often time or space) to a representation in the frequency domain and vice versa [10]. It is based on the fundamental principle of decomposing the computation of DFT of a sequence of length of N into successfully DFT. There are many variants of FFT but we discuss decimation in time (2 points). It has a butterfly structure and W_N is the twiddle factor.

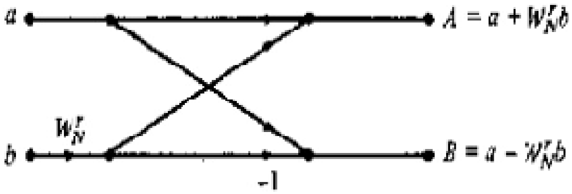


Fig.6. Butterfly Structure [10]

3.6. Spectrum Analyzer

A spectrum analyzer is a device which measures the magnitude of an input signal versus frequency [9]. Mainly use of this instrument is to measure the power spectrum of known and unknown signals. It is based on super-heterodyne principle. By analyzing the spectra of electrical signals, dominant frequency, power, distortion, harmonics, bandwidth, and other spectral components of a signal can be observed that are not easily detectable in time domain waveforms [11]. These parameters are useful in the characterization of electronic devices, such as wireless transmitters.

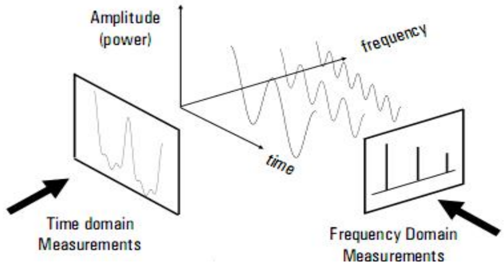


Fig.7. Frequency versus Time-domain [9]

IV. SIMULATION

Simulation is performing in MATLAB Simulink. There are some parameters in which spectrum are generated.
Resolution Bandwidth = 97.6mHz
Number of Fast Fourier Transform = 1537
Span Frequency = 100 Hz
Magnitude in dBm on the Y axis and frequency in Hz on the X axis.
As mention in Table 1, frequencies corresponding to the organs. Therefore, the spectrum of the body organs is divided into two parts i.e. individual and average spectrum of body organs.

Table1: Frequency Table of Body Organs [13]

S.N.	Name of Body Organs	Frequency (MHz)
1	Brain Frequency	72-90
2	Normal Brain Frequency	72
3	Human Body	62-78
4	Heart Frequency	67-70
5	Liver Frequency	55-60
6	Pancreas Frequency	60-80
7	Disease Start at	58

4.1. Individual organ frequency

1. Brain Frequency: The frequency range of brain is 72-90MHz take average frequency of brain and converts into radians per second.

(72+90)/2 = 81MHz = 508938009.3rad/sec

2. Human Body: The frequency of the human body is 62-78MHz. Average frequency is 70MHz.

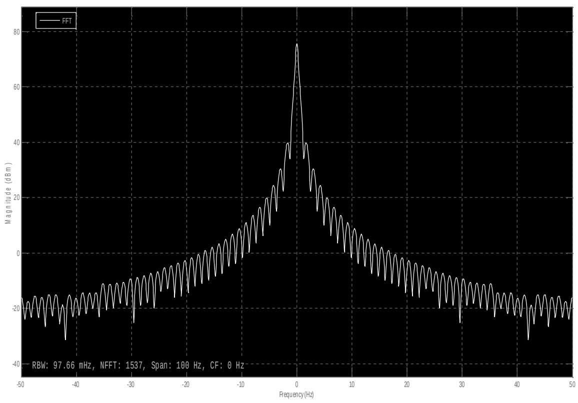
70MHz = 439822971rad/sec

3. Heart: The frequency of heart is 67-70MHz. Average frequency is 68.5MHz.

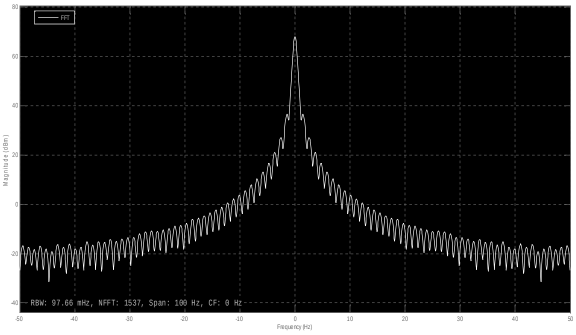
68.5MHz = 430.39819305rad/sec

4. Liver: Frequency of Liver is 55-60MHz, average frequency is 57.5MHz.

57.5MHz = 361.28315475rad/sec



(a)



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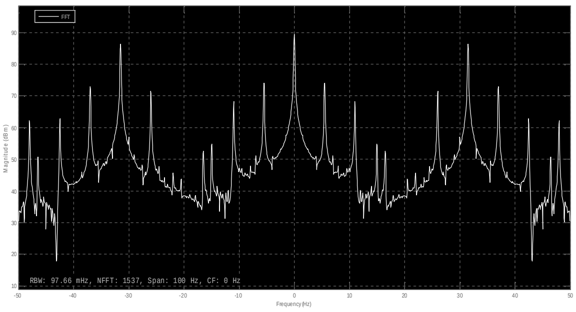

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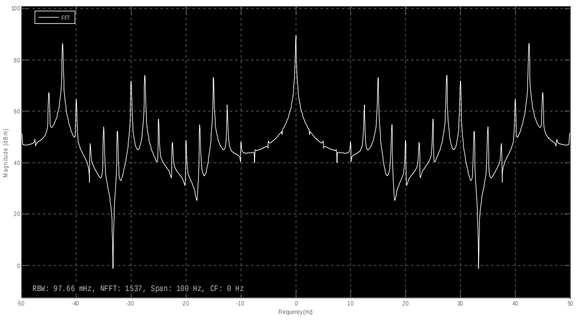

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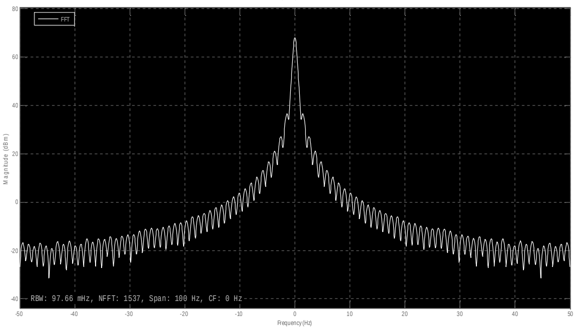

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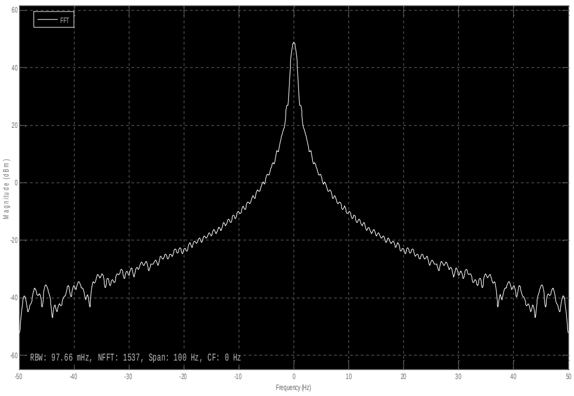

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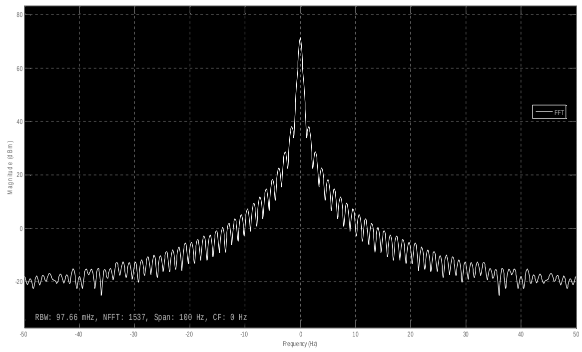

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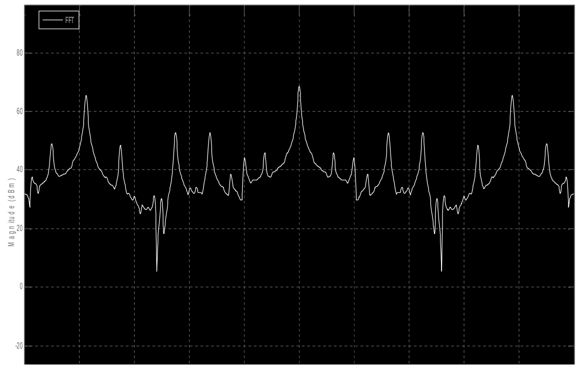

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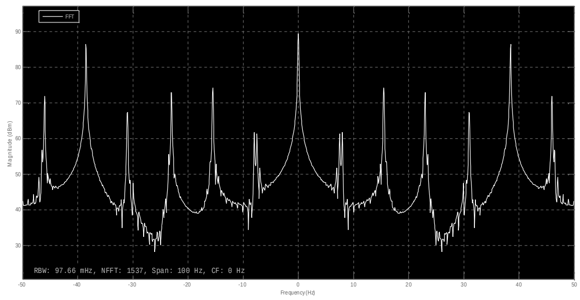

(i)

Fig.8. Individual/two organ(s) spectrum (a) Brain (b) Human Body (c) Heart (d) Liver (e) Pancreas (f) Disease start at (g) Brain and Heart (h) Heart and Liver (i) Brain and Liver

5. Pancreas: The frequency of Pancreas is 60-80MHz. Average frequency is 70MHz.

70MHz = 439822971rad/sec

6. Disease Start at:

Frequency = 58MHz = 364424747.4rad/sec

4.2. Average frequency of two organs

1. Brain and Heart:

Brain = 81MHz
Heart = 67 - 70 MHz
Average Frequency = 74.75MHz
= 469668101.18rad/sec

2. Heart and Liver:

Heart = 60-70 MHz (65 MHz)
Liver = 55-60 MHz (57.5MHz)

Average = 61.25MHz
= 384.84509963rad/sec

3. Brain and Liver:
Liver = 57.5MHz
Brain = 81MHz
Average Frequency = 138.5 MHz
= 870.22116405rad/sec

RESULTS AND DISCUSSION

It is confirmed that every organ has its own frequency based spectrum but according to analysis the frequency of the human body is not stable; it varies on some parameters like environmental, physically fitness, etc. There are many parameters in which the body organs change their frequency in a specific range. Every organ of a body is linked to another organ. So it is easy to check out the difference of frequency between the organs.

CONCLUSIONS

From the above simulations, it is clear is that this paper is effective for detecting the peak frequencies of body organs and average frequencies of blood when it passes through the different organs of the body. It can be used blood diagnosis and frequency synchronization for preserve body organs for a long time.

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