

**MULTISIM SIMULATION AND IMPLEMENTATION OF  
CHAOTIC CIRCUIT**

**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF DELHI**

**FOR THE AWARD OF DEGREE OF  
MASTER OF ENGINEERING  
(CONTROL & INSTRUMENTATION)**

**Submitted by**

**ARUN KUMAR SHARMA**

**(University Roll No. 9021)**

Under the supervision of

**Mr. RAM BHAGAT**

(Electrical Engineering Department)



**Department of Electrical Engineering**

**DELHI COLLEGE OF ENGINEERING**

**Bawana road, Delhi-110042**

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**CERTIFICATE**

It is certified that **Mr. ARUN KUMAR SHARMA**, student of M.E, Control and Instrumentation, Department of Electrical Engineering, Delhi College of Engineering, has submitted the dissertation entitled “**Multisim simulation and implementation of chaotic circuit**” under our guidance towards partial fulfillment of the requirements for the award of the degree of Master of Engineering (Control & Instrumentation Engineering).

This dissertation is a bonafide record of project work carried out by him under our guidance and supervision. His work is found to be outstanding and has not been done earlier.

I wish him success in all his endeavors.

**(Mr. RAMBHAGAT)**  
Assistant Professor  
Electrical Engineering Department  
Delhi College of Engineering  
Delhi-110042

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**(Arun Kumar Sharma)**  
University Roll No.: 9021  
College Roll No.:01/C&I/09  
M.E. (C&I)

## **ABSTRACT**

The linear system gives the inadequate information about the characteristic of sustained oscillation. We will take the linear concepts and simple harmonic motion to nonlinear concept and chaos. In order to exhibit chaos, an autonomous circuit consisting of resistors, capacitors, and inductors must contain i) at least one nonlinear element ii) at least one locally active resistor and iii) at least three energy storage elements.

Chua circuit is the simplest electronic circuit that satisfies these foundations. In addition, this remarkable circuit is the only physical system for which the presence of chaos has been proved mathematically.

Here we are going to represent the chaotic circuit with different simulation of inductors i.e. inductor replaced by Op-amp, by GIC, by OTA. After it the different patterns are formed which represents chaos, in every circuit voltage Vs time characteristics,  $V_1$  Vs  $V_2$  characteristics and inductor characteristics in MULTISIM software are depicted.

**CONTENTS**

(i) Acknowledgement.....iii  
(ii) Abstract.....iv

**CHAPTER-1 INTRODUCTION**

1.1 Introduction.....1  
1.2 Chua circuit .....1  
1.3 Chaos theory.....2

**CHAPTER- 2 LITERATURE REVIEW .....3**

**CHAPTER- 3 CHUA’S CIRCUIT**

3.1 General .....6  
3.2 The Non-Linear Resistor Concept and Chua Diode.....9  
3.3 Circuit topology and realization of Chua diode .....11  
3.4 Software used .....13

**CHAPTER-4 REALIZATION OF CHUA CIRCUIT WITH DIFFERENT VALUE OF R10**

4.1 Simulation and results of realization of chua circuit with different value of R10  
4.2 V1-V2 Characteristic .....15  
4.3  $V_1(t)$ - $V_2(t)$  Characteristic .....18

**CHAPTER- 5 REALIZATION OF INDUCTORLESS CHUA CIRCUIT**

5.1 Simulation and results of realization of inductorless chua circuit.....19  
5.2 The Synthetic Inductor Impedance .....20  
5.3 The Synthetic Inductor Impedance Derivation.....21  
5.4 V1–V2 Characteristics .....23  
5.5  $V_1(t)$ - $V_2(t)$  Characteristic .....25

**CHAPTER- 6 SIMULATION OF INDUCTOR USING GIC**

6.1 Inductance simulator using GIC.....26  
6.2 Generalised impedance convertor .....27  
6.3 Simulation for Vin-Vout characteristic of inductor.....29  
6.4 Vin-Vout characteristics.....30

6.5 Simulation and results of Realization of Chua’s circuit Using GIC.....	31
6.6 V1–V2 Characteristics.....	32
<b>CHAPTER- 7 SIMULATION OF INDUCTOR USING OTA</b>	
7.1 Inductor simulator using OTA.....	35
7.2 Idealized Gyrator–based Inductances .....	35
7.3 Practical Gyrator Based Inductance .....	39
7.4 Analysis Of The OTA-Based Gyrator Active Inductance .....	40
7.5 Design Constraints and Guidelines .....	44
7.6 Vin-Vout Characteristic of inductor using OTA.....	48
7.7 Vin – Vout Characteristics .....	49
7.8 Simulation and results of realization of Chua’s circuit using OTA.....	50
7.9V1 –V2 Characteristics.....	51
<b>CHAPTER- 8 CONCLUSIONS AND FURTHER SCOPE.....</b>	<b>53</b>
<b>REFERENCES</b>	