

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi-560014, Karnataka



CGV MINI PROJECT REPORT

ON

"Transformers simulation"

*SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
CGV LAB*

BACHELOR OF ENGINEERING  
IN  
COMPUTER SCIENCE & ENGINEERING

Submitted By

Girisha V (1SV20CS011)

Under the guidance of

**Mr.Renukaradhya P.C** B.E., M.Tech.,

Assistant Professor, Dept. of CSE.

*Nandhu Kumar*  
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Department of Computer Science and Engineering

**SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(Affiliated To Visvesvaraya Technological University)

Sira Road, Tumakuru – 572106, Karnataka.

2022-23



Sri Shridevi Charitable Trust (R.)  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**CERTIFICATE**

This is to certify that, Computer Graphics and Visualization Mini-Project of entitled "Transformers simulation" has been successfully carried out by Girisha V [1SV20CS011], in partial fulfillment for the CGV Lab of Bachelor of Engineering in Computer Science & Engineering of the Visvesvaraya Technological University, Belagavi during the academic year 2022-23. It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The Mini- Project report has been approved as it certifies the academic requirements in respect of Mini-Project work prescribed for the Bachelor of Engineering Degree.

*A*

**Signature of Guide**

**Mr. Renukaradhya P.C** B.E., M.Tech.,  
Assistant Professor,  
Dept. of CSE,  
SIET, Tumakuru.

*N. Renukaradhya P.C*  
PRINCIPAL  
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**Signature of H.O.D**

**Dr. Basavesh D** M.Tech., PH.D.,  
Associate Professor & HOD  
Dept. of CSE,  
SIET. Tumakuru.

**Name of the Examiners**

1 ..... *H. Arun* .....

2 ..... *A. K. S. L.* .....

**Signature with date**

..... *[Signature]* 13/7

..... *[Signature]* .....

18/7/23.



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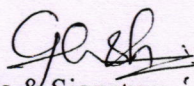
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**DECLARATION**

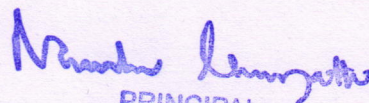
I, Girisha V [1SV20CS011], student of VI semester **B.E** in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Mini-Project work entitled "**Transformers simulation**", embodies the report of our Mini-Project work carried out under the guidance of **Mr. Renukaradhya P.C, Assistant Professor, Department of CSE, SIET, Tumakuru** as partial fulfillment of requirements for the CGV Lab in **Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi**, during the academic year **2022-23**. The Mini-Project has been approved as it satisfies the academic requirements in respect to the Mini-Project work.

Place: Tumakuru

Date: 05/07/23

  
Student Name & Signature

**GIRISHA V[1SV20CS011]**

  
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## **ABSTRACT:**

This project aims to simulate a transformer using the OpenGL (Open Graphics Library) framework. The transformer, a common electrical device used to transfer electrical energy between two or more circuits, is represented visually in a 3D environment. The simulation allows users to interact with the transformer model, change its parameters, and observe its behavior in real-time.

The project leverages the capabilities of OpenGL for rendering the 3D graphics and implementing the simulation's visual components. The transformer model is constructed using geometric primitives and textures to provide a realistic representation.

Various OpenGL features, such as shaders, lighting, and texturing, are utilized to enhance the visual quality and realism of the simulation.

The simulation allows users to manipulate the transformer's input parameters, such as voltage, current, and frequency, and observe the resulting changes in the transformer's behavior.

Real-time calculations are performed based on the input values, and the simulated transformer responds accordingly, showcasing the principles of electrical energy transfer and transformation.

Additionally, the project may incorporate user controls and interactive elements to enable users to experiment with different scenarios and observe the effects on the transformer.

This interactive aspect enhances the educational value of the simulation, providing users with a hands-on experience of working with transformers and fostering a better understanding of their functionality.

Overall, this transformer simulation project utilizing OpenGL aims to provide an interactive and visually engaging environment for users to explore the behavior and principles behind electrical transformers. It serves as a valuable educational tool for students, professionals, and anyone interested in learning about transformers and their applications.

### **Technology used**

**Graphics Software:** various software packages are available for creating computer graphics, including 3D modeling and animation software,

**Computer Hardware:** A powerful computer with a good graphics card and sufficient storage capacity is required to run graphics software, C++ and python languages are used in graphics.

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