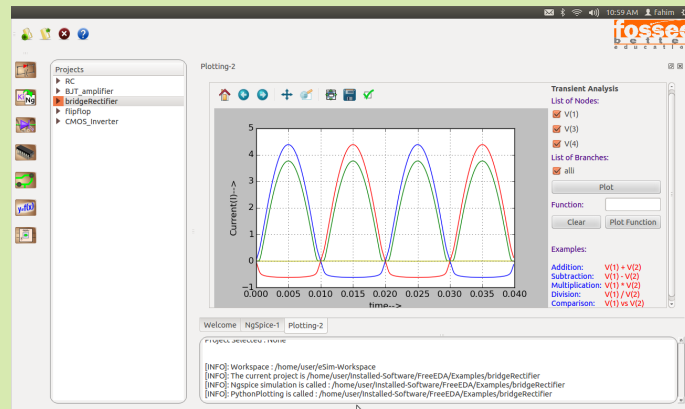


Introduction

eSim (formerly known as Oscad/ FreeEDA) is an open source EDA tool for circuit design, simulation, analysis and PCB design, developed by FOSSEE team at IIT Bombay. It is released under GNU GPL License & runs on Ubuntu Linux, Windows XP and Windows 7.

It is an integrated tool built using open source software, such as, KiCad (<http://www.kicad-pcb.org>) and Ngspice (<http://ngspice.sourceforge.net>). eSim has been successfully ported to low cost FOSSEE Laptop (<http://laptop.fossee.in>).

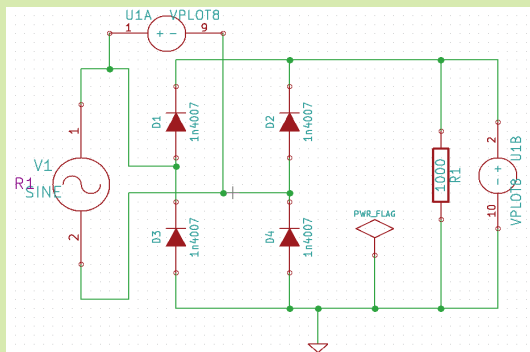


eSim Front end

Features

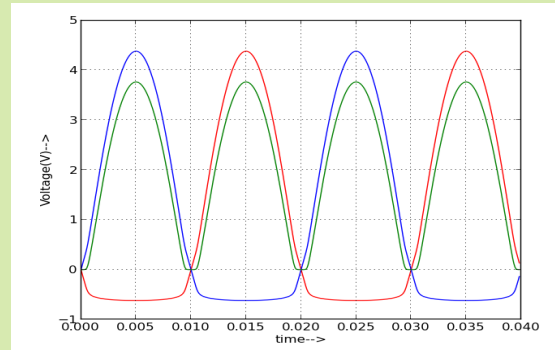
Create Circuit Schematic

- Generate netlists for simulation and PCB design
- Perform Electric Rules Check (ERC)
- Create new components using Library Editor



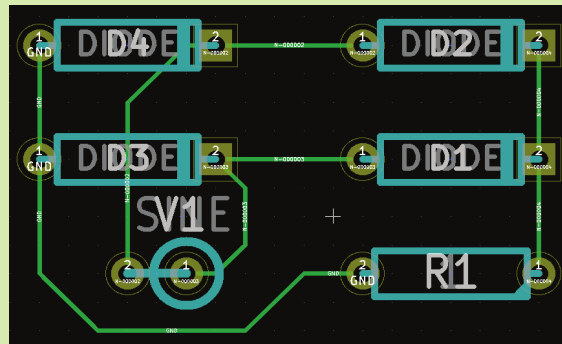
Perform Circuit Simulation

- Analog, digital and mixed signal circuit simulations
- Perform AC, DC, nested DC and Transient analyses
- Interactive Python plotting



Create PCB Layout

- Lay tracks
- Modify the width of tracks
- Create multi-layer PCB designs
- Add/edit design rules
- Generate Gerber files



Advanced Features

Model Builder:

- Create a new model for an electronic device
- Edit an existing model of an electronic device

Sub circuit Builder:

- Create a new sub circuit
- Edit an existing Sub circuit

Mixed mode simulation:

- Mixed mode simulation can be done using the NGHDL module which is created by integrating Ngspice and GHDL

Textbook Companions

The Textbook Companion aims to create eSim project files for all the solved simulation examples present in standard Electrical and Electronics Engineering textbooks.

The objectives of this project are to:

- Make it easy for users of standard textbooks to start using eSim
- Improve the documentation available for eSim

Participate & earn attractive honorarium + certificate of Internship from IIT Bombay.

Available Textbook Companions:

- 1) *Digital Fundamentals* by Thomas L.floyd, Pearson Education, Delhi. 2002
- 2) *Digital Principles And Applications* by Donald P Leach | Albert Paul Malvino | Goutam Saha, Tata Mcgraw Hill Education Pvt Ltd, Delhi. 2009
- 3) *Electronic Circuits, Analysis And Design* by Donald A Neamen, Tata Mcgraw-hill, New Delhi. 2007
- 4) *Electronic Devices And Circuit Theory 10 Edition* by Louis Nashelsky | Robert L. Boylestad, Pearson. 2009
- 5) *Fundamentals Of Digital Logic* by Stephen Brown, Mcgraw Hill Companies, India. 2007
- 6) *Microelectronic Circuits : Theory And Applications* by Adel S. Sedra | Kenneth C. Smith, Oxford University Press. 2009
- 7) *Spice For Circuits And Electronics Using Pspice* by Muhammad H. Rashid, Prentice Hall. 1995

Lab Migration

We help to Colleges & Institutes shift EDA labs based on proprietary tools to eSim.

The Lab Migration team helps in:

- Providing suggestions on the different ways eSim can be implemented in the lab
- Coordinating lab migration to FOSS only laboratory
- Providing solutions to the lab's problem statements
- Supporting free workshops for faculty, students & lab staff

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