Laboratory of Natural Information Processing
DA-IICT Gandhinagar

AntSoft

User Manual

AntSoft

User Manual

Laboratory of Natural Information Processing
DA-IICT, Gandhinagar, Gujarat 382007
http://www.guptalab.org/antsoft

Documentation version 1.0

This file last modified on May 6, 2014.

Credits & Team

Principle Investigator: Manish K. Gupta, PhD.
Developers: Sahil Sikka, Lavish Mantri

Acknowledgments

The authors would like to thank Professor Manish K. Gupta for his constant guidance and support throughout this project. We would also like to thank David Gilbert for the JFreeChart Library for making graphs and also Jyloo Software for Synthetica Look and Feel Library.

General Information

Introduction

AntSoft is a software which can be used to generate ant circuits for any logic gate circuit that the user draws and obtain the simulation results like pheromone concentration on all locations of the circuit and number of ants finally coming out of the circuit. The software provides a drawing panel where user can draw any logic circuit and provide values for different parameters.

Installing AntSoft

The software can be installed from the website www.guptalab.org/antsoft.

Getting Started

Once you have successfully installed the software, open AntSoft by double clicking on the application, you will be prompted with a screen with different options on the interface.

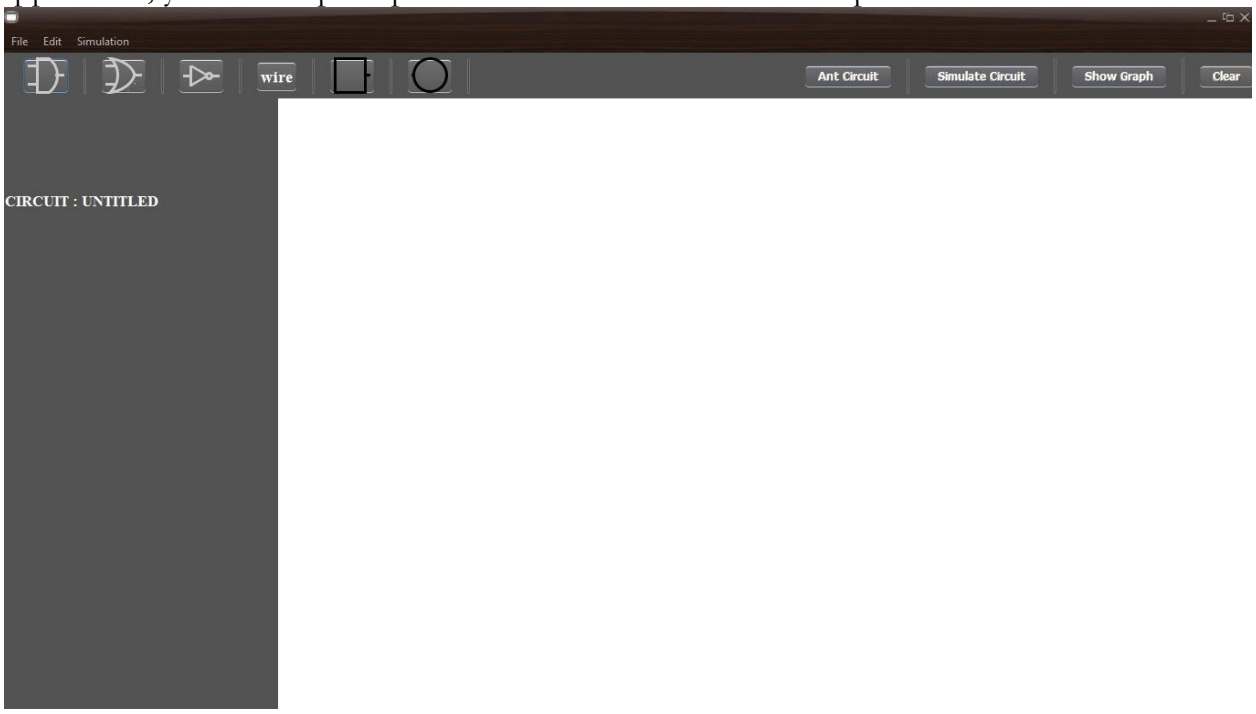

Figure 1 User Interface of AntSoft

The main features that the software provides the user with are:-

- Draw any logic gate circuit.
- Generate ant circuit for the corresponding logic gate circuit.

- Simulate the circuit for different values of the various parameters involved.
- Show pheromone concentrations of each location at each time stamp.
- Save logic gate circuit.
- Undo
- Clear

Draw any logic gate circuits

The user can draw any logic gate circuit using the basic components like AND gate, OR gate, NOT gate, wire, input and output components. The user can also provide the values of the different parameters involved like Pump-A, Pump-B, number of ants in the battery and number of ants at the input by clicking on the corresponding component on the canvas as shown in Fig 2.

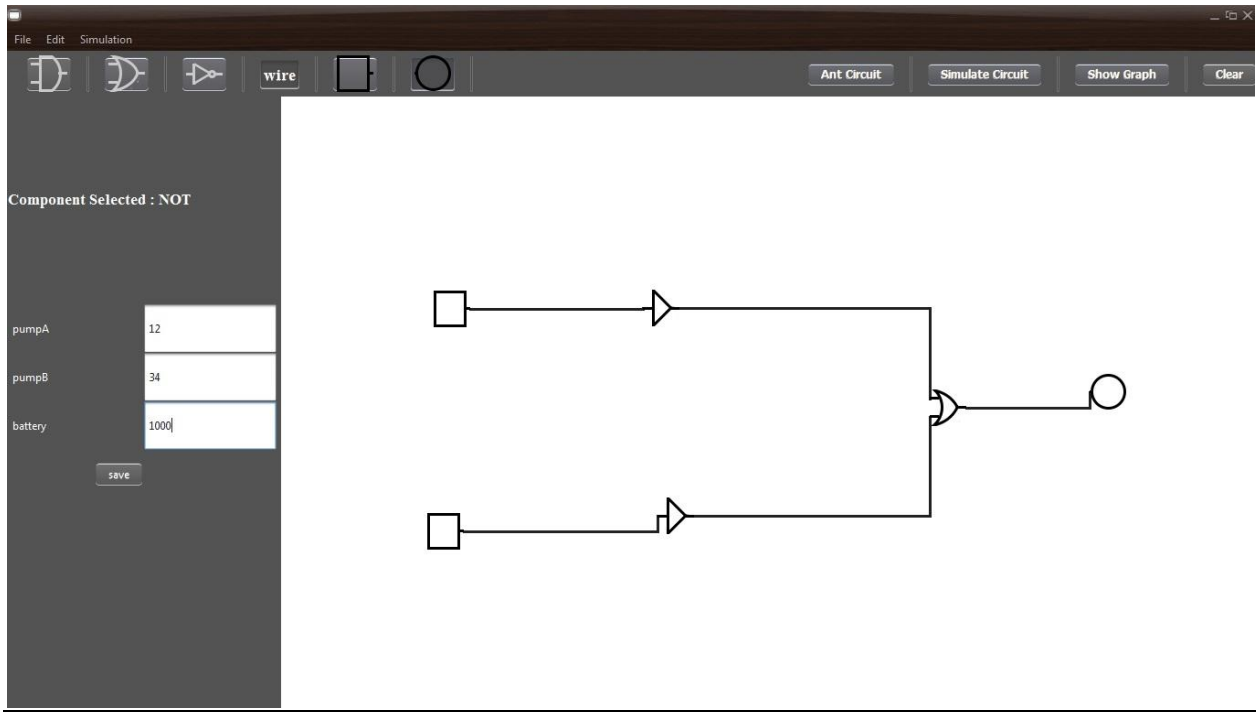

Figure 2 Sample Logic gate circuit.

Generate ant circuit for the corresponding logic gate circuit

The ant circuit can be generated by clicking on the 'Ant Circuit' button as shown in Fig 3.

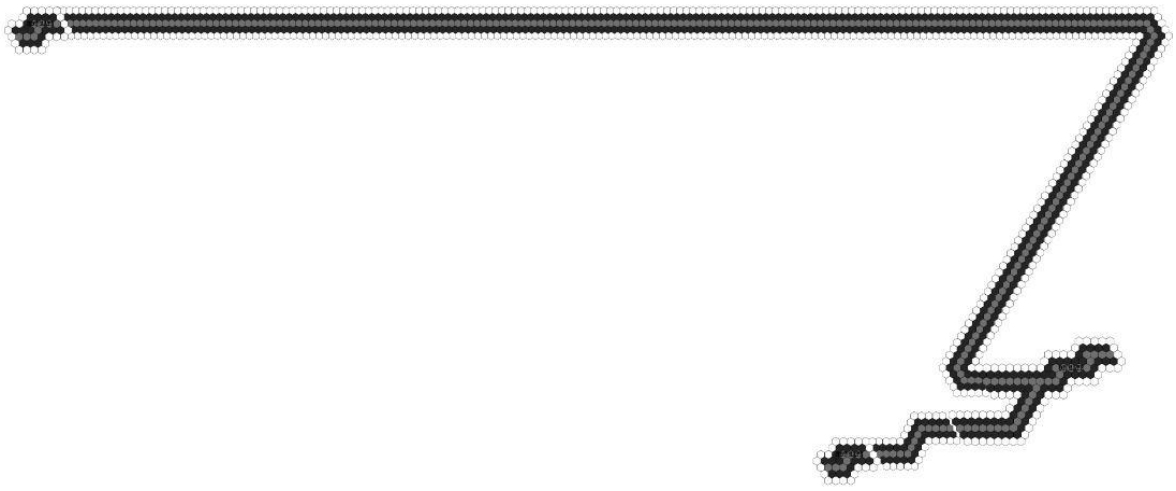

Figure 3 Ant Circuit for the sample logic circuit drawn in Fig. 2

Simulate the circuit

The circuit can be simulated by clicking on the 'Simulate Circuit' button. By clicking on the button a simulate screen would appear as shown in Fig. 4 which would ask for the values of the circuit parameters i.e. threshold, diffusion rate, dissipation rate and ant secretion. Once the user clicks on the 'Simulate' button the circuit simulates on the basis of the values provided.

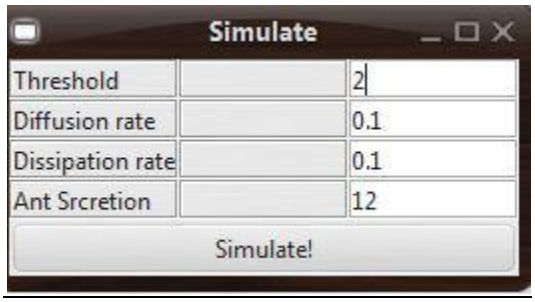

Figure 4 Simulation screen

Displays Graphs for pheromone conc. Vs Time

We can see the graphs (pheromone Vs. Time) at each location of every gate that the user chooses. Click on the gate for which the user wishes to see the graph and click on 'show graph' button. Fig. 5 shows graph of a NOT gate of above circuit.

Figure 5 Graph for a NOT gate

Save Logic Circuit

The user can save logic circuits by click on the save button in the file menu.

Undo

The user can undo any action performed by him on the logic circuit.

Clear

The user can clear the entire drawing panel by clicking on the 'clear' button.

Support and Feedback

Users are requested to contact team at the feedback page on the website www.guptalab.org/antsoft for any issue with the software. Windows installer is available on the project home page along with source code.