Automatic Generation of Thermal Model for 1D-CAE
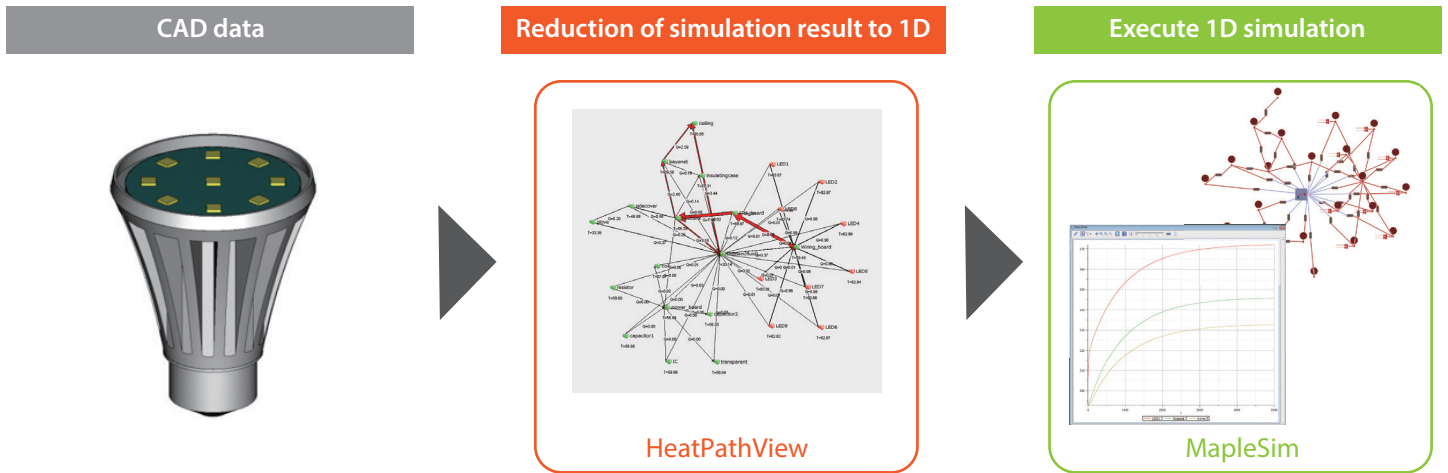
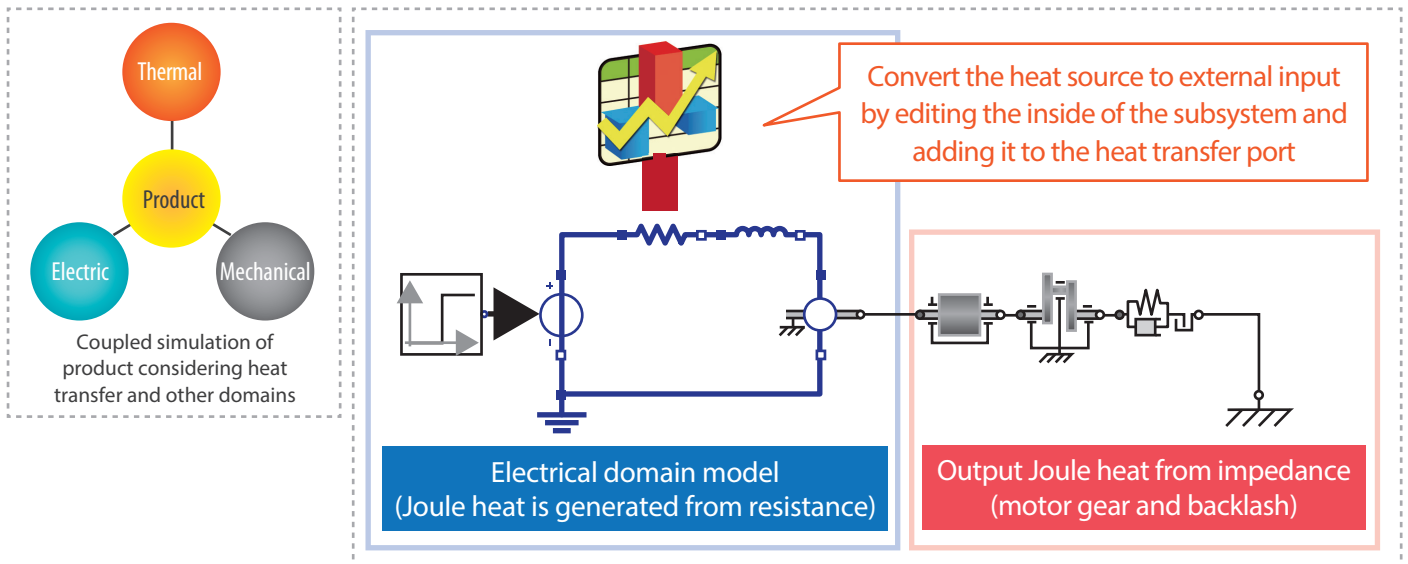Cooperation between HeatPathView and MapleSim

Function Details

Heat path information generated by HeatPathView can be inherited to MapleSim. By using this function it is possible to construct 1D-CAE model from 3D-CAD data and use it as multi domain heat transfer node.

MapleSim

Data conversion flow chart

CAD data	Reduction of simulation result to 1D	Execute 1D simulation

HeatPathView

MapleSim

Example of multi domain simulation : DC motor

Thermal
Product
Electric
Mechanical

Coupled simulation of product considering heat transfer and other domains

Convert the heat source to external input by editing the inside of the subsystem and adding it to the heat transfer port

Electrical domain model
(Joule heat is generated from resistance)

Output Joule heat from impedance
(motor gear and backlash)

Notes

• Thermal model for 1D-CAE can be generated from 3D CAD data.

• Simulation of the whole system can be performed by combining domains such as electric and mechanical.

• Optimization design can be performed by using optimization tool for the constructed model.