Thermal Simulation of Electric Vehicle Battery

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Abstract

This project deals with thermal modelling of a segment comprising Li-ion cells. With the given conditions of air flow rate and heat flux, the temperature of source (cell connections) is observed over the entire duration of simulation. The results show the maximum temperature attained by the region in scrutiny and helps to validate the real time performance.

Problem Statement

The objective is to observe the variation of temperature close to the heat source over a fixed interval of time. The heat sources are regions where terminals of two cells come in contact and generate heat due to contact resistance between them. Forced convection is used to cool these regions with the help of air.

The figures below show the geometry of the problem.