ABSTRACT

Thermal management design for battery used in automobiles are very important in order to manage the thermal dissipated by operating components. This project aims at performing design optimization of a thermal management system for battery modules in modern vehicles. An active cooling systems is proposed where PCM (Phase Change Materials) is used for manage temperature of battery modules. The causes of problem due to improper thermal management of battery is deployed to identify the potential failure modes and causes so that improvements can be made for battery modules. The design for the thermal management system were done with Solid Works. To maintain the temperature of battery different Phase change materials are used as the medium to conduct heat from battery during its passage time at different operating temperatures. The thermal management system for battery modules is simulated using ANSYS software using steady state thermal analysis. Results from simulation were validated and have shown good agreement based on the data collected at various vehicle speeds.