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Abstract

Battery powered cars are growing in demand, increasing the use and safety concern of high-powered lithium ion batteries. Hybrid vehicles are powered through both traditional engines and battery packs, reducing the overall fuel usage. As a result, the batteries produce excess heat while powering the vehicle. Without proper cooling, the batteries risk thermal runaway. This is where the temperature increase causes destructive results, such as fires or explosions. Thus, safety is important motive for our project.

The goal of this project is to improve the structural and thermal management of a hybrid car battery, thus maximizing the safety for the user and efficiency of the vehicle. The structural side of the project focuses on protecting the battery from impacts. The thermal side of the project focuses on cooling the battery using extended fins. These are used along with other design considerations, such as component placement and material selection. The battery system is designed and tested to ensure the safety of the user. Overall, this aids in the advancement and safety of vehicle batteries.