

Fuel Cell Emulator for Hybrid Fuel Cell Vehicle Powertrain Developments

Status: Filled

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Project Description

About the project

Fuel cell vehicles are emerging as a clean energy alternative to internal combustion engine based vehicles in the transportation sector. In a hybrid fuel cell vehicle powertrain, the power converter interfacing the fuel cell stack with the dc-bus plays an important role in conditioning the power required by the propulsion. For developing better powertrain components of fuel cell vehicles, a fuel cell emulator can help significantly by providing a low-cost alternative to a real fuel cell system. The emulator needs to provide outputs according to the polarization curve of an actual fuel cell stack, under both steady state and transient conditions. It should also be able to simulate conditions where the fuel cell is either healthy, degraded, or faulty.

Skills, background, and role required of team: The students must have strong background in power electronics, control systems, embedded computing, and