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## Patent Search

Invention Title	ANN BASED SWITCHING OF CAPACITOR BANK IN AN EV POWERED BY MODIFIED FUEL CELL
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### Abstract:

Battery and fuel cell, combined with the Ultra-Capacitors (UC), has major advantage as an electric vehicle's power source. Appropriate switching of UC bank with battery can provide better utilization of UCs. Switching performance of the capacitor bank can be improved by the proper mapping of drive cycle using Artificial Neural Network. With proper mapping, size and rating of capacitive switching bank can be reduced which reduces the cost and increases the life of bank as the switching losses are less. With the predictive series parallel combinations of UCs, switching frequency of the UC bank and heating losses can be reduced. Due to increased demand of green and sustainable resources of energy for power consumption, Solid Oxide Fuel Cells (SOFC) have attracted much interest of researchers and industries as an alternative power generation device due to their improved efficiency, working temperature, start-up time and environment friendly characteristics. Fuel cells generate electrical energy from chemical energy without any combustion, and hence, they have become one of the decisive technologies for production of hydrogen energy in the coming generations. Thus, by implementation of a thin film based SOFC along with a battery powered EV, can greatly enhance the power density and efficiency of the electric vehicle with reduced size of power supply.

### Complete Specification

#### Claims:WE CLAIMS

- Battery and fuel cell, combined with the Ultra-Capacitors (UC), has major advantage as an electric vehicle's power source. Appropriate switching of UC bank with battery storage can provide better utilization of UCs. Switching performance of the capacitor bank can be improved by the proper mapping of drive cycle using Artificial Neural Network (ANN). With proper mapping, size and rating of capacitive switching bank can be reduced which reduces the cost and increases the life of bank as the switching losses are less. With the predictive series parallel combinations of UCs, switching frequency of the UC bank and heating losses can be reduced. Due to increased demand of green and sustainable resources of energy for power consumption, Solid Oxide Fuel Cells (SOFC) have attracted much interest of researchers and industries as an alternative power generation device due to their improved efficiency, working temperature, start-up time and environment friendly characteristics. Fuel cells generate electrical energy from chemical energy without any combustion, and hence, they have become one of the decisive technologies for production of hydrogen energy in the coming generations. Thus, by implementation of a thin film based SOFC along with a battery powered EV, can greatly enhance the power density and efficiency of the electric vehicle with reduced size of power supply.
- According to claim1# the invention is to a Battery and fuel cell, combined with the Ultra-Capacitors (UC), has major advantage as an electric vehicle's power source. Appropriate switching of UC bank with battery storage can provide better utilization of UCs. Switching performance of the capacitor bank can be improved by the proper mapping of drive cycle using Artificial Neural Network (ANN).
- According to claim1,2# the invention is to a With proper mapping, size and rating of capacitive switching bank can be reduced which reduces the cost and increases the life of bank as the switching losses are less. With the predictive series parallel combinations of UCs, switching frequency of the UC bank and heating losses can be reduced.

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