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(54) **PHEV ENERGY MANAGEMENT CONTROL WITH TRIP-ORIENTED ENERGY CONSUMPTION PREPLANNING**

(58) **Field of Classification Search**
None
See application file for complete search history.

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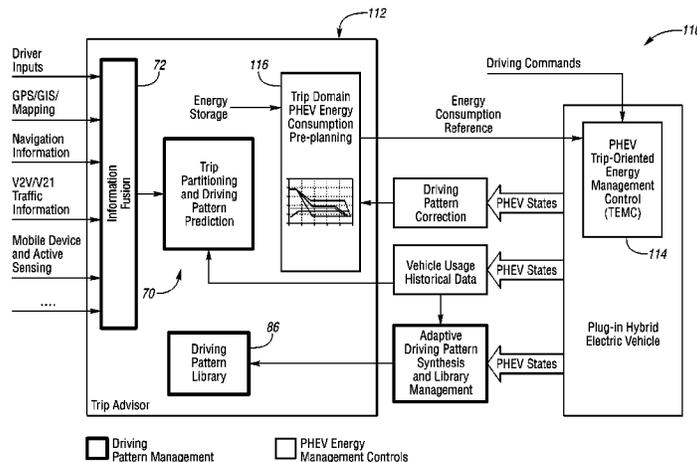
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(57) **ABSTRACT**

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A driving pattern based plug-in hybrid electric vehicle (PHEV) energy consumption preplanning process enables a PHEV trip-oriented energy management control (TEMCO) to utilize scalable levels of available trip foreknowledge in order to optimize the onboard energy (fuel and electricity) usage. The preplanning process generates an optimal battery state-of-charge (SOC) depletion profile for a given trip to be traveled by a PHEV. The preplanning process may generate the battery SOC profile using a driving pattern based dynamic programming (DP) algorithm. The TEMCO controls the onboard energy usage in accordance with the battery SOC profile, which is optimized for the trip. The preplanning process makes use of spatial domain normalized drive power demand (SNDP) (or S-NDP) distributions in which each set of distributions is indicative of a respective driving pattern. The trip foreknowledge is used to select the driving pattern best representative of the driving process for the trip.

5 Claims, 5 Drawing Sheets



□ Driving Pattern Management □ PHEV Energy Management Controls