

Invention Title

Cloud controlled proactive air conditioning for vehicles using GPS, terrain and sensor data

Invention Summary

Method and system to offer cloud controlled optimum air conditioning for moving vehicle using GPS, terrain and sensor data

Invention Description

This invention disclosure combines data from multiple sources (e.g. GPS, terrain, sensor networks) to control the in-vehicle air conditioning system in an optimized manner.

How things work today: Passenger in a vehicle sets the temperature in the vehicle and the air conditioning system run to maintain the desired temperature without knowing 1) the outside temperature in advance and 2) without knowing the terrain (e.g. inclination, declination) data

Background information: 1) The vehicles can offer better performance (power and miles per gallon) by optimum utilization of air conditioning system since the air conditioning system takes power away from the combustion engine to run. 2) More and more sensor network are being deployed (and will be deployed) which are collecting a lot of real time information about the environment (e.g. webinar) and feeding it back to the cloud 3) Google and the government have done an excellent job in collecting and storing the terrain data for great majority of the earth In this invention disclosure we propose that a cloud based system is collecting temperature and other weather related data from sensor deployed by the side of the road. The cloud based system also knows the location, speed and direction of movement of the car. The cloud based system also knows the terrain that car is in and would be entering in near future based on the speed and direction. The cloud based system combines this information learnt from various sources and take following actions:

- 1) Reduce the portion of combustion engine power delivered to the AC when the temperature outside the car is either about the same or lower than the temperature inside the car
- 2) Reduce the portion of combustion engine power delivered to the AC when the car is entering or about to enter an strenuous terrain (inclined path). This will not only deliver ore power to move the car but also save some fuel.
- 3) Reduce the portion of combustion engine power delivered to the AC when the car is entering or about to enter a shaded area
- 4) Increase the portion of of combustion engine power delivered to the AC when the car is entering or about to enter a easy terrain (declining road)
- 5) if a user has choosen optimum fuel consumption for the trip, then the cloud can calculate an optimum speed for the cat based on the terrain and temperature. This is even more helpfup with electric vehicles as the amount of speed, temperature and terrain are very important variables in calculating the optimum speed of the car.
- 6) Because the cloud not only knows the terrain, temperature but also the location of the charging stations (also gas stations), it can further optimize the speed and use of AC automatically and also suggest to the user when he/she should stop at the charging station (gas station) to charge (or fill up gas)

Invention Commercial Value/Customers

High.

Invention Differences

No such system exist today.