



Fig. 6 Roof of a car with solar panels[11] [12]

VI. FINDINGS OF THE STUDY

EVs are presently powered by a power train based on a battery pack which is based on Lithium-ion cells. There are two aspects which causes concern for a customer, which are the limited range and then the high cost of Lithium-ion cells. Sodium-ion batteries can be used but they require three times the size being less energy efficient. Even though the cost can be reduced using Sodium ion cells, it does not take care of the limited range. The thought process went on to identifying a power train which is less dependent on battery pack for the power train.

Utilization of dynamo and magneto has been considered for converting the kinetic energy produced by the car on its motion to electrical energy using the dynamo or magneto as the case may be. Magneto can provide electrical energy with high voltage. On the other hand, dynamo can provide regular electric current to run the motor to drive power train and traction of the car.

In addition to the electric current produced by the dynamo and magneto, the high voltage electric current can be complemented by using regenerative braking system. What are the other sources available for generating electrical energy? These have been analyzed and we found that the structure of the car provides utilization of technology to generate power from wind energy and solar energy. Wind energy as a source of auxiliary power can be cultivated through vested funnels.

The cut-in, rated and cut-off speed should be identified to generate maximum electrical energy and prevent damage to the rotor. The vested funnels can be aerodynamically designed on the side walls to gain maximum electrical energy. Another source of auxiliary power is solar energy. An average car has a roof area of 60 square feet. By fitting flexible solar array, it can generate a constant 2-3 hp power.

VII. CONCLUSION

EV has become a necessity due to various reasons. Spiraling of oil price may be a temporary phenomenon but more importantly is the depletion of fossil fuel which gives a hint that sooner or later it would finish. Technologically EV has taken shape in various forms and most of the automobile companies have moved on to the transition of manufacturing EV engines from IC engines. One of the common technologies adopted is relying heavily on battery pack. With the dependency on Lithium-ion battery being heavy despite being the alternative of Sodium-ion available cost factor is a cause of concern. Hence dynamos and magnetos can provide a solution by providing electrical energy from the kinetic energy produced by the wheels of the car. In addition, there is scope for utilizing wind energy adopting vested funnels in the side panels of the EV. As has been tried out in the past, flexible solar arrays can be incorporated on the roof of the EV for harvesting electrical energy.

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