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An Idea About Design of an Electric Vehicle using Turbo-Excitation from Stored Pressure System without using Battery Supply

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Abstract: ***Today's Trend of Energy storage systems in Electric vehicles employs Lithium Batteries. These batteries conclude an essential part of the operation of these new vehicles. But the Lithium Batteries suffer from disadvantages of thermal runaway causing cell ruptures when overheated or overcharged which gives rise to electrochemical failures resulting propensity and severity of fires from the accidental ignition of flammable ignition of electrolytic solvents. In this project, a governor based starting excitation will be used for the starting of Electric vehicles. The high pressure from the storage tank will run the alternator coupled to the turbine for Electrical Energy Generation which in turn will feed the Electro-Mechanical System of these vehicles.***

Keywords: Electric Vehicles (E-Vehicles), Lithium Batteries, Turbo-Excitation

1. Introduction

With the new revolution in hand and days change with time, conventional Transport Vehicles now being replaced with Electric Vehicles which are more efficient than former types resulting in saving of fuel, pollution reduction, mitigation of carbon footprints and lowering the pace of Global Warming [1]. We may really say that these vehicles are playing a major part for Energy Conservation in the Transport Sector. Electric vehicles Design involve the use of Lithium batteries for Electrical Energy Accumulation [2], [3]. The batteries mostly used are considered as the most suitable choice for the development of the new generation E-Vehicles. In the last few years some risks, incidents or accidents had taken place from the use of Lithium Batteries. Although the Lithium Batteries being beneficial in terms of capacity, performance, Efficient Charge storing and potential maintenance, etc. lead to some high risks which involve:

- In case of car Accidents, these batteries more often explode causing burning and Fire conditions to personnel inside and as well to the vehicle
- Electrical risk (short-cut)
- Danger due to chemical reactions
- Chemical risk due to toxic liquids and gases
- Thermal danger due to high temperatures
- Mechanical risk because of the higher weight of the battery components

In this project, a new trend is under concern which will involve the use of Innovation, Creativity, and Idea for the development of Electric vehicle through the use of governor pressure system for excitation of alternator called turbo starting for Electrical Energy Generation. This emphasis will definitely lower the life danger risks in electric Vehicles and will also eliminate the use of one more environment polluting substance ''lead'' which is most commonly found in Lithium Batteries.

2. Objective

The assessment of Turbo-Excitation using high pressure system will firstly involve finding the life safety mark in the Electric Vehicle Technology and secondly it will eliminate the use of lithium Batteries which result in fire or explosion cases due to overcharging or overheating causes.

3. Methodology

This methodology will deliver the safety, efficiency, best performance and elimination of the Lithium batteries which contain the dangerous material filled for Storage and delivery of electrical energy. In addition, vehicle operation will result in better efficiency and power under heavy or hilly conditions as high-pressure governor control will also create support to gear train transmission system by controlling the shit value movement of the E-Vehicle. Figure 1 shows the block outline diagram for E-Vehicle development.

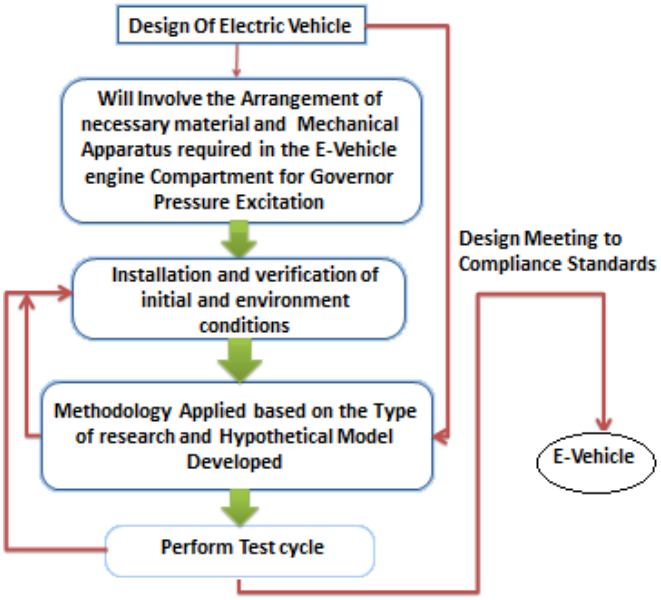

Figure 1: Shows the block outline diagram for New E-Vehicle Development

4. Conclusion

Governor based excitation used for starting-on the E-Vehicles will resemble direct starting of the E-Vehicle without any electrical energy received from conventional type battery system. The Methodology undertaken for the improvement of E-Vehicle will definitely result in better Vehicle performance, enhanced efficiency, Safety against from uncertain Battery explosions.

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