

Super-Capacitor Based Metro Train

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Abstract: The paper suggests a control technique for improving energy saving in metropolitan train equipped by on board super-capacitors. This metro train provides a review of new technology being developed for electric urban public transport. The result was the development of electric transport system. That not only satisfy the primary concerned requirement, but are also less energy devastate. We can procreate energy from most of sources. Just like solar, wind, hydro coal as a fuel in plant.

In the country like INDIA where the population is the growing up drastically now a day so it is essential to control traffic in big cities of INDIA. In this project, analysis of execution the metro train and their utilization for the public transport entire. But this metro is not completely depending on electricity means to say that here the sustained supply will be eliminated which is use to drive metro with the help of overhead line. We use to drive our metro with the help of super-capacitor. It is a type battery with spacious size and its very heavy as this capacitor unit required some more place to establish it on train so that it will give continuous supply to motor. The technologies presented in this project are among the excellent to help providing future instrument for building more environmental public urban transport. The super-capacitor based on metro train is one of the great achievement in future by seeing rapid consumption of coal and other fuel in present situation.

Keywords: Super-capacitor, Power managing, Consumption of resources.

1. Introduction

From last few years' people mobility has increased in urban areas, implying the necessity of rapid transit improvement in terms of passenger capacity and number of journey than metro is the best option. Metro trains aim to provide safe and comfortable journey to a large number of passengers in a short period of time, which makes it become an important part of public transportation. Great amount of energy is consumed in big cities due to largely working of metros. Due to this, there is a hike in cost consumption for maintaining the metro route and various aspects for running the metro. This problem is lowered by introducing the concept of super capacitor in the metros. This help in eliminating the case of overhead cables by installing super capacitor in metro. The super-capacitor uses the concept of charge and discharge. This super capacitor also get discharge by supplying continuous energy to motors of metro train so the charging of this capacitor is necessary to give continuous and trouble-free operation of metro Super capacitor

will charge itself through a charging point installed at various station with the help of pantograph on the metro. As the metro reaches the station, the obstacle sensor will sense the station and will erect the pantograph for charging. The super capacitor has an advantage of fast charging and slow discharging which reduces the electricity cost of running the metro. The capacitor will charge up to its full capacity and will travel till next station. The charging will be done through pantograph. Thus, this method will not only reduce the cost of installing overhead wires, but will also the save time and energy of humans required for maintaining it and also, electricity for running metro.

2. Objective

This project gives brief idea about, how the use of super-capacitor in metro proves worthy. Considering the problem faced by metros nowadays, regarding the excessive use of electricity and the maintenance required for overhead wires. Super-capacitor has ability to minimize the use of electricity and eliminate the use of overhead wire concept. Problem formulation and implementation methodology. This system is fully based on electronics (using microcontroller and sensors) and highly reliable and less expensive to implement and can be implemented. The main aim is to draw conclusion on problem of generation of electricity with the help of fossil fuel which are going to end one day. This system will help to save the fossil fuels and provide an efficient way of operating the metro.

It can also be used for storage of electricity as it charges quickly and discharge rate is slow. In local locomotives such as local trains this project can be applied.

3. Working Principle

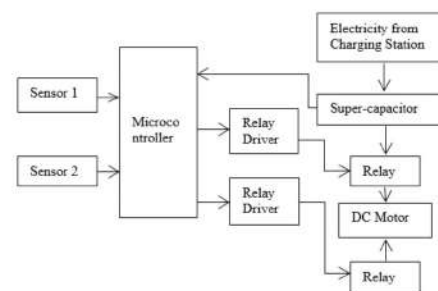


Fig. 1. Block diagram of super-capacitor based metro train