ABSTRACT

This study transformed the kinetic energy in moving vehicle to electric power for battery charging, based on the concepts of Pure Electric Vehicle (PEV) and Hybrid Electric Vehicle (HEV). It aims to improve the obstructing factors in the development of electric vehicles, such as insufficient charging device and time-consuming charging, which limit the efficiency of electric vehicles and result in inconvenience, and in order to improve the functions of electric vehicles and increase the market share, in turn to decrease the environmental pollution caused by gasoline vehicles and consumption of petroleum resources. The experiment used 8052 single chip to control the dual battery set to detect the voltage conditions automatically, and electric system composed of switch-controlled circuit and generating set on moving vehicles to conduct auto-detection of battery voltage and control the electric discharge of the dual battery set and instant charging conditions. It used simple design electric vehicle for the system integration experiment. In idle test, the results of two cycles of charge and discharge showed that the single battery usage time increased from 120 minutes to over 500 minutes. The road test, the results of charge and discharge cycle showed that the single battery usage time increased from 50 minutes to over 200 minutes. The efficiency evaluation and consumption analysis were discussed in the paper.

Keywords: Pure Electric Vehicle PEV, Hybrid Electric Vehicle (HEV)