ABSTRACT

Energy sources are the main component of the most important and need to be considered in all vehicle systems. Electric vehicles whose energy source is electrical energy derived from batteries. Knowledge of battery characteristics becomes an important factor in the performance of electric vehicle systems. The need for good monitoring and arrangement to avoid the occurrence of things that are not desirable.

At this final task will design a real time battery monitoring and charging management system. Monitoring by serial method using Bluetooth will displayed in Microsoft Visual Basic as interfacial device. Charging management using a buck-boost converter which receives control reference from switching components controlled by microcontroller. Buck-boost also accepts input from a 3-Phase rectifier for regenerative braking. Regenerative braking by utilizing remaining rotation of the BLDC motor when the pedal is removed.

The results obtained from this research is a system capable of monitoring and storing data in real time with span of time per second. Buck - boost converter can convert voltage according to design with current not exceeding 0,2A on buck and 0,5A on boost as optimal limit. Regenerative braking capable of transfer energy of 20,30 Watt and the highest efficiency 88,51%.

Keywords : Battery, Monitor, Management, Buck, Boost, Regenerative.