ABSTRACT

In the age of technology activities that require and use more and more batteries. Batteries are a carryable and easy-to-find energy storage device. In cases where battery usage is found to be less efficient at work due to excessive use. To cope with the situation, then by knowing the capacity of the battery can help maintain battery life. State of Charge is a method that can show the energy available on the battery. In this research to find SOC value will be used Support Vector Regression method that yield regression function from hyperplane and to process data will be used MATLAB program. To get the SOC value the first thing to do is create a table. Next do the cross validation process that divides the data into two parts namely training data and test data. Then after the data is divided into the next process, namely data processing using the method Support Vector Regression. Because the data is non-linear, it needs a kernel that minimizes the error value when determining hyperplane and rebuild the data to be linear, then use Radial Basis Function. This study will produce SOC data on two conditions, discharging and filling. After the research done, then obtained value of SOC 2.16% - 103.6% during discharge conditions and 1.96% - 91.90% during filling conditions. This provides information for SOC values on the same battery with different methods.

Keywords: State of Charge, Support Vector Regression, MATLAB, Hyperplane.