ABSTRACT

As time goes by, Electric Vehicles (EV) which use batteries to drive their engines have been created. Battery failure will result in system failure in the electric car, so to prevent this, a BMS (Battery Management System) is needed. BMS is a system to regulate battery usage and protect the battery from conditions that lead to battery failure. One of the information provided by BMS is State of Health (SOH) which refers to a decrease in battery performance. An appropriate State of Health (SOH) estimation method is needed to reduce the possibility of battery failure.

In this final project research, the author uses the Machine Learning method, namely the Support Vector Machine which will be applied in the State of Health (SOH) estimation system. A Support Vector Machine (SVM) with a Radial Basis Function (RBF) as a kernel function is applied for SOH estimation. The predictive performance of SOH by SVM is carried out with voltage, current and temperature data to solve non-linear problems found in Lithium Ion batteries. The results of the experiment show that the intended approach allows accurate estimation of SOH for practical applications.

Keywords: State of Health, Lithium Ion, Support Vector Machine.