

## ABSTRACT

Along with development of technology followed by invention of various voltage source like secondary battery. NiMH battery is a popular secondary battery which is often used because it can be recharged until hundred times and also is easy to get. Generally, secondary battery charger which is available in market now does not terminate current when the battery is fully charged. If the owner of that fully charged battery forgets to replace it and the battery keeps getting charged for long time, the temperature of it will get rising and be dangerous. Therefore in this final project, do designed a battery charging system which can terminate current automatically.

In this final project, battery charging system is designed to use constant current method with two options of current rate. For the battery which has capacity above 2000mAh, system is designed to flow 1A current for high current rate and 0,2A current for low current rate. And for the battery which has capacity below 2000mAh, system is designed to flow 0,5A current for high current rate and 0,1A current for low current rate. Relay is used for terminating current flow.

Based on research, fully charged condition based on detected voltage from ADC PORT A ATMega8535, they are 1,51volt for high current rate and 1,42volt for low current rate. The measured current is 0,11A and 0,31A for low current rate, and 0,52A and 0,78A for high current rate. LCD is used for displaying bar which indicates the state of charge battery. Based on final result can be concluded that the accuracy rate for relay in terminating current and for displaying bars is 100%.

Keywords: Charger, Battery, Automatic, Microcontroller