

# **AUTOMOBILE BATTERY LIFE & HEALTH ESTIMATION USING EXPERIMENTAL DATA ANALYSIS**

**BY**

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**01-244162-020**

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**Session-2016**

A Report submitted to the Department of Electrical Engineering

Bahria University, Islamabad

in partial fulfilment of the requirement for the degree of MS(EE)

## ACKNOWLEDGEMENTS

In the light of study, research and hard work I would like to acknowledge with great honour the following who have immensely contributed to make this possible.

Firstly, I would like to thank Dr Imtiaz Alam and Dr Muhammad Aamir for their keen concern and continuous guidance throughout. I would like to extend my gratitude to the entire faculty till date who has bestowed me with knowledge at their very best.

I would like to mention all those people who have geared up my skills and acknowledged my keen concentration for this thesis work, friends and family. A completed research work is never possible without support. In the end I would like to thank everyone connected to me for being there as an inspiration or as a mentor.

## **ABSTRACT**

For decades, side by side with the technological advancement in its engineering design and chemistry, a common battery has been used extensively and diversely in a range of applications. Batteries are these days used almost everywhere. One such example can be witnessed in our daily life is the use of lead acid batteries in automobiles for ignition purposes and to address other electronic & electrical load. At the very same time, these lead acid batteries can become a source of great discomfort when they are not able to serve their prime purpose, especially at times when they are needed the most. Therefore, it is necessary to constantly monitor its health to avoid such an inconvenience. For the purpose, many state of charge, state of health and life estimation methods have been contributed by many researchers in the literature, with each standing uniquely with its own method and algorithm. For the completion of this thesis, the experimental approach has been adopted to take in account all the uncertainty factors with the sole purpose of having as accurate as possible results and analytical conclusions. For battery health condition realization and assessment of its suitability for a field job, fuzzy logics have been employed in a MATLAB environment. The results indicate that the proposed methodology is an adaptive one, which can be applied for any given load (automobile) with any given battery specification.

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