Electric vehicles (EV’s) and plug-in hybrid electric vehicles (PHEV’s) are gaining popularity in the US and around the world because they are promoted as environmentally friendly cars. Air pollution, record high gas prices, and dependence on foreign oil are pushing sales growth of the EV’s and PHEV’s. Advertisements assure us of “zero emission” and the question asked is no longer “why electric?”, but “why gasoline?” While most electric car owners consider themselves “green”, the process of mining for lithium and the production of these batteries in reality is actually a less than “green” activity. In addition, the recycling process is neither simple nor cheap.

**OBJECTIVE**

- To utilize retired Lithium ion batteries from EV’s and PHEV’s for reusable Power source for Residential application.

**DESIGN**

- We have divided the Project in two phases, Hardware and Software.
- First phase, we worked on Hardware layout of the physical Electronic materials, testing and creating the lithium-ion battery banks and Load Circuit.
- Second phase, we are using LabView software for measuring and monitoring the health of Battery bank.

**RESULTS**

- We successfully plotted voltage drop across the battery banks and current drawn from battery banks against the time.
- Using the above measured values, we are able to calculate state of charge of a battery bank and using the stated of charge we are able to predict state of health (SOH).

\[
\text{SOH} = \frac{C_f}{C_i} \times 100\% \quad C_i = \text{final Capacity} \\
C_o = \text{initial Capacity}
\]

- Our Battery Management System (BMS) demonstrated the idea of using the retired lithium-ion batteries for secondary usage in residential applications.

**HARDWARE**

**SOFTWARE**

**REFERENCES**