



# Liion Club

IIT Dharwad

## Electrification of an auto rickshaw

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### About Li-ion Club

This club was initiated with an aim to contribute to EV technologies as well as harnessing and storing renewable energies. There is a huge demand for energy in the contemporary world and this will keep on increasing in the future. Conventional fuels are not an option to fulfill this escalating demand. There are plenty of renewable sources of energy but currently, there are few devices to store them efficiently. The club brought together 41 like-minded students from different streams with a motivation of bringing out new technologies and research in the field of EVs, harnessing and storing the green form of energies.

### Overview of the project

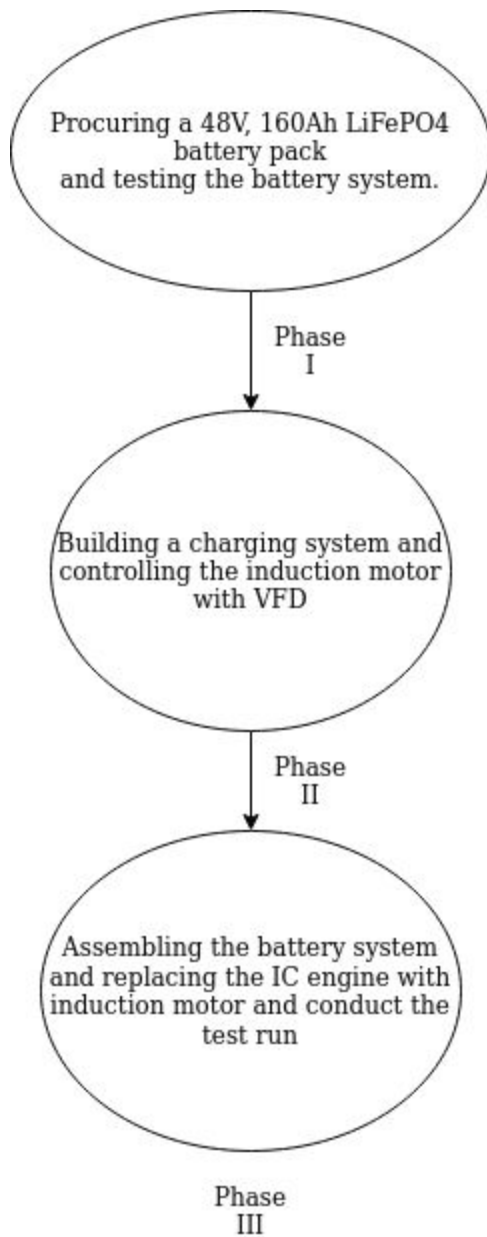
Electrification of the transportation sector is one of the tools which can significantly reduce the consumption of fossil fuel and greenhouse emissions. Gradually, the existing internal combustion-based engines will be replaced by electric vehicles (EVs). Though the concept of electric vehicles has been around for a while, it has drawn a considerable amount of interest in the past decade in the wake of rising carbon footprint and other environmental impacts of fuel-based vehicles. The transition from IC engines to EV, especially in India, is long due, because of several critical issues from the point of consumers as well as manufacturers - range, battery charging time, cost and availability of charging stations, and etc. In addition to introducing new EVs, special attention should also be given on converting existing transport facilities such as public transport systems and auto rickshaws, which may help in saving a huge chunk of the economy.

### About the project

The first project of the club is electrifying a regular petrol engine auto rickshaw by replacing the IC engine with induction motor (48V, 10 hp) powered by LiFePO<sub>4</sub> (48V, 160Ah) batteries. The purpose of doing such a project is to provide a cheap alternative for an expensive electric auto rickshaw by building an electric conversion kit with a swapping mechanism that will check the issue of high charging time. The conversion kit will help each Auto driver to save ₹9000 to ₹15000 per month.



## The project will be executed in 3 phases



Another far-reaching goal behind conducting such a project is to kick start enthusiasm in the club members and motivate them to carry out many innovative endeavors in the future.