

Sparkle ID

SP21C009642

Project Title

Al-Air Battery

Category

Energy Storage Technologies

Sub Category

Novel, Low Cost, Earth Abundant Electrode Materials for battery

Abstract

We are an IIT Madras based student team with a faculty mentor, developing a novel electrolyte based rechargeable al-air battery to increase the energy density up to 8 times and thus increasing not only the range but also the net efficiency saving more than 1 lakh tons of CO₂ production per year. Our battery is lighter in weight and almost 60% cheaper than the pre-existing Li-ion and Li-po batteries.

Problem Statement

To provide a more efficient and cheaper energy storage facility with least price/km

Solution

We are developing a novel electrolyte to make a rechargeable Al-air cell. This is conceptualized to provide up to 1000 cycles of charge and discharge. We are also designing a more efficient battery pack

Innovation

The innovation is the novel electrolyte, the introduction of recyclability and performance optimization along with less weight and greater charge density

Technical Description

we have developed a novel electrolyte for an al air battery with Al anode and O₂ cathode. the electrolyte makes it reversible, hence the battery rechargeable. Research and testing for discharge have been plotted and then after multiple iterations a cell voltage of ~ 2.2 V had been achieved

Keywords

smart battery, battery, sustainable, green, clean energy, EVs, Electric Vehicles, Transportation, Less CO2 emission

Patent Status

Patent Filed: no