



# BatteryGenix

Just swap it!

## Introduction

Electric vehicles have numerous advantages over conventional vehicles, but range anxiety & high charging time are main constraints on the path of transition to EVs. Range anxiety is mainly due to limited range of EVs because of lower energy density of batteries, limited charging infrastructure & errors in range estimation. The existing solution, battery swapping can be implemented efficiently for BEV and HEV and can be an add-on to PHEV. It has many advantages like reducing the weight of vehicles and helps in maintaining the desired position of the center of gravity. Though battery swapping has its advantages, there are methods developed and adopted for the prediction of demand of batteries, they are limited to only Battery Swapping Station (BSS). It is hard for drivers to predict the state and range of cars considering swapping and charging stations nearby.

## Prize Money

1<sup>st</sup> Prize: 5,000

2<sup>nd</sup> Prize: 4,000

3<sup>rd</sup> Prize: 3,000

## Problem Statement

Participants will need to assume an islanded grid and transportation system for a city with extensive levels of electric vehicle integration. It will include electric vehicles such as BEV, HEV, and PHEV. Participants will be provided relevant data from which they will have to optimize the **location, capacity, and number of battery swapping stations**. (Assuming that the battery swapping is only option)

### Round 1

There will be a quiz which will rigorously assess their grasp over EV batteries, and their charging methods. It will include some logical reasoning assessment questions which will be helpful in assessing relevant skills which might be helpful for upcoming rounds.

### Round 2

Participants will be given a dataset which contains numbers of electric vehicles and bikes passing through a particular point in given city. Different Battery specification will be included in that dataset. Along with this participants will be provided with the map of the city.

Teams will need to provide a mathematical model with the final location, capacity and number of battery swapping stations, along with the technical report explaining thought process of the assessment.



## Round 3

It will be a presentation round followed by QnA.

## General Rules

- Bring your college/student I-Card at the time of competition.
- Decision Taken by Judges will be final and binding for all.
- Any misbehaviour will lead you to disqualification from the competition.
- If less than 5 teams will be registered, then only first prize will be given and if less than 10 teams will register, only two prizes will be given.

## Team Specifications

- Team should be of 1-3 member/s.
- Members of a team may be from the same college/school or different (K12/UG/PG).
- Any number of teams can participate from one college/school.
- Professionals are not allowed. Only students can participate.
- Participants are required to bring their school/college ID cards.
- Once registered, the same team cannot register with another name or for another model other than previously registered one.
- Every team must have a unique name that should not be offensive conflicting or inappropriate.
- Organizers have the right to reject entries for any inappropriate team name.
- Organizers must be notified if a team's name has been changed.
- Team Representative: Each team must specify their Team Representative (Leader) at the time of registration on the website. All important communications between the organizer and the registered teams will be done through their Team Representative. The Team representatives must submit valid contact details (phone no., email id, etc.) at the time of registration.
- If teams don't show up on allotted slot, they will be disqualified.

## Event Timeline

Round 1	Online Quiz	7 <sup>th</sup> April 2022
Round 2 (virtual mode)	Deadline	11 <sup>th</sup> April 2022
	Releasing list of shortlisted candidates	12 <sup>th</sup> April 2022
Round 3	On site event	14 <sup>th</sup> April 2022

## Registration Details

Registration window will open soon!