

Project Title:- Multipurpose Hybrid Electric Vehicle

TEAM NO.:- 417

NAMES OF THE STUDENTS PARTICIPATED IN THE TEAM:-
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SEMESTER:- 8TH

DEPARTMENT:- MECHANICAL ENGINEERING

CITY:- PUNE

STATE:- MAHARASHTRA

PROJECT MENTOR NAME:- MAYANK SHRIVASTAVA

Project Details:-

We came up with the innovative idea of converting your existing scooter/mopeds and bikes into Hybrid Electric Vehicles (HEV).

After conversion your vehicle will run in Electric mode as well as in Petrol mode.

As Petrol price, Air and Sound Pollution are rising so 90 vehicle should be run on Electric mode and 10 on Petrol mode that too only as an Emergency Backup. So that you wont stop in between because of Battery drain out and wait 4hr for charging the battery at the charging stations. You can also swap discharged batteries by charged batteries.

Controlling the scooty on a mobile application, they have developed features such as keyless entry, antitheft system, locate vehicle and Petrol and electric auto boost system on inclinations.

Uniqueness

- 1) Easy to Install.**
- 2) Affordable price.**
- 3) Cost of converting vehicle into HEV 50 percent Affordable than new EV.**
- 4) Return Of Investment (ROI) is in 1 Year.**
- 5) Running Cost 12 paisa/Km.**
- 6) Emergency Backup Petrol**
- 7)Cruise Control for Less Fatigue.**
- 8) AI system for drivers comfort.**
- 9) Android App for Monitoring.**

Problem Statement:-













- 1) Limited Range**
- 2)High Petrol Prices**
- 3)Unsafe Batteries**
- 4) Non-portable batteries**
- 5) Low power on inclined slopes**
- 6) Battery Theft**
- 7) No Standby Unit**
- 8) High Electric Vehicle Prices**
- 9) Traffic Problem**

11) Sustainable use of Resources

12) Reducing Carbon Footprint

13) Drastic Climate Change

Problem Statement

 Drastic Climate Change	 High Petrol Prices	 High Electric Vehicle Prices	 Lithium-Ion Batteries Are Not Safe
 Lack Availability of Charging Stations	 No Standby unit	 Non Portable Batteries	 Low power on inclined slopes
 Limited Range	 High Pollution	 Low Load Bearing Capacity	 Battery Theft

Need of Project:-

Impact to Business and Society



Reduce Traffic



Reducing Carbon Footprint

Implementing SDG's

Reduce Global Warming



Reduce Pollution

Sustainable use of Resources













Reducing Fossil Fuels Based Economy

Implementing 3R's



Proposed Solution:-

Solutions

 Hybrid Electric Vehicles	 Saves Money Rs.5/charge	 Affordable Price	 High Load Bearing Capacity
 Less Pollution	 Portable Battery Charger	 Extended Range	 Anti Theft Battery System
 Safe Battery Composition	 Portable Battery	 Cruise Speed Control	 High power on inclined slopes

Technology Used:-

Hybrid Electric Vehicle,

BLDC Hub Motor,

Regenerative Controller

Wire Harnessing

Switches

Torque Arm

Solidworks Design

Assembling of Vehicles,

Electric Vehicles,

Lithium Ferro Phosphate Battery,

Project Outcomes:-

What makes your solution/idea innovative?



Easy to Install



Affordable Price



(ROI) = 1 Year



AI system for driver's comfort



Android App for Monitoring



Emergency Backup = Petrol



Portable Battery + Charger



Combined Petrol + Electric Throttle Cable



Combined Petrol + Electric Switch as per Speed/Torque requirement manually



BLDC Hub Motor



App Features
Android App for Monitoring



Keyless entry with Fingerprint



Anti Theft Battery System



Locate

Modelling:-

Technical Feasibility
































Patent Application Number
202121031277

Results:-

Results			
 Hybrid Electric Vehicles	 Saves Money Rs.5/charge	 Affordable Price	 High Load Bearing Capacity
 Less Pollution	 Portable Battery Charger	 Extended Range	 Anti Theft Battery System
 Safe Battery Composition	 Portable Battery	 Cruise Speed Control	 High power on inclined slopes

Future scope for project enhancement:

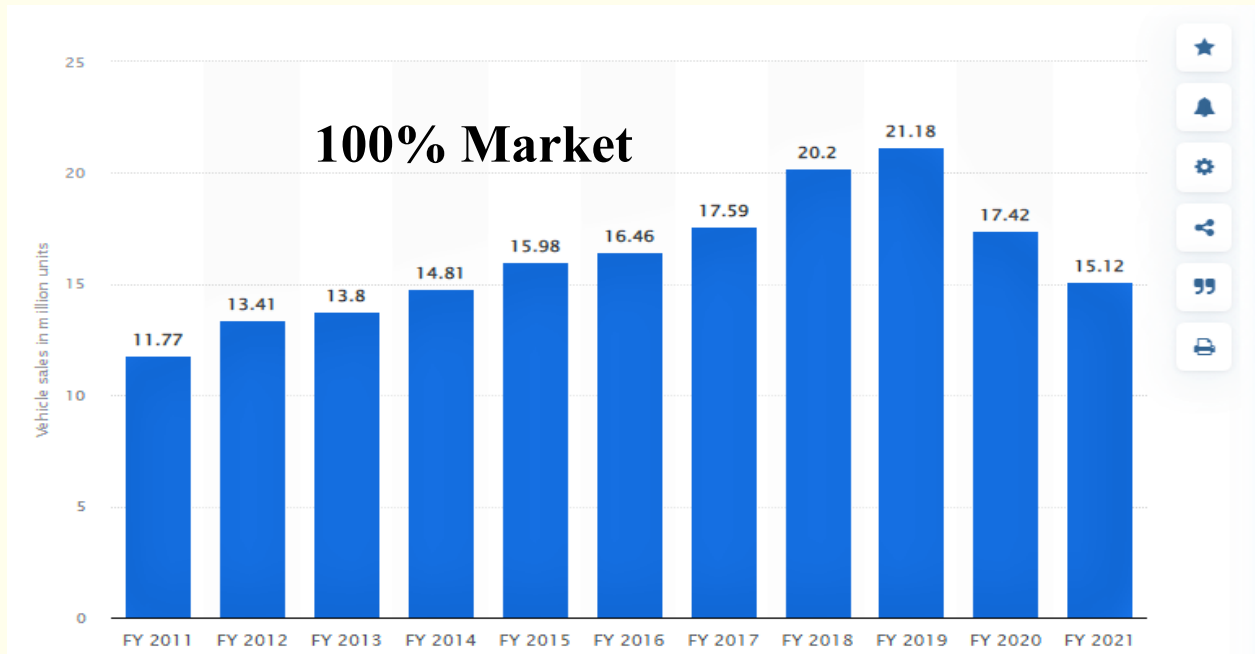
Target Customers

- Existing IC Engine Vehicles.
- Farmers (Heavy load carrying and economical)
- **Early Adopter :-**
- Urban area food delivery bikes. E.g. Zomato, Swiggy, Pizza Hut, Dominos.
- All Logistic Delivery Chain Networks. E.g. Amazon, Flipkart, Ekart, Blue Dart, DHL.
- Daily Commute work. Schools, College, Office, Grocery.
- Rentals :- Bike Rental Service for Tourists.

- What is the market size of the opportunity? (Enter in INR)

Ans:-

1% two-wheelers = INR 10663 Cr / \$1.4 Bn B2B2C



- How do you aim to scale-up?

Ans :- Starting with its manufacturing plant in Pune, Maharashtra, it will position its major products/vehicles offering to metropolitan cities like Pune, Mumbai, Aurangabad, Nashik, etc.

After achieving its initial targets of few thousand vehicles in the initial two years, it will expand the operations to include other surrounding states with the sizable populations.

In the projected time frame of 5 years, this project will be scaled to produce million vehicles and as well as jobs across India.

Thus, the business model has been kept scalable.

- What will be the revenue model?

Revenue Model: It is a framework for generating financial income and identifies the sources of revenue for a product or service.

Ans :-

Converting all existing vehicles into Hybrid Electric Vehicle.

We will be giving out our own Franchise and taking money for using Franchise Name and logo.

ELESPA Rental service for battery swapping and bike on rent.

- Who are your key competitors?
No any startups, MSMEs and Corporates. We are Monopoly in the market.
- Social Media (optional): Facebook, LinkedIn, Twitter, YouTube, Other (Enter the link)

Ans:

Facebook

<https://m.facebook.com/102904181925722/>

LinkedIn

<https://www.linkedin.com/in/prathamesh-choudhary-39855b17b>

Twitter

https://twitter.com/ELESPA_HEV?s=09

Instagram

https://www.instagram.com/elespa_hev/