



S E A S O N 9

CHANGING GEARS

Case Brief

AI based connected solution for
Vehicle & Driver Profiling



BML MUNJAL UNIVERSITY™
A Hero GROUP INITIATIVE

Academic Partner

Function Name:

Digital & Information Technology

Function Description:

Digital & Information Technology function is the technology driven business transformation, which optimizes digital processes to enhance efficiency and innovation, strengthens the Hero MotoCorp initiatives around IT-related infrastructure, ensuring cyber security, developing and maintaining software applications, and aligning digital strategies including the usage of new-age technologies. This function plays a pivotal role in ensuring that the company remains competitive, efficient, and innovative in the rapidly evolving automotive industry.

Problem Statement:

AI based connected solution for Vehicle & Driver Profiling

Most of our 2 wheelers have TCUs (Telemetry Control Units) on them to collect vehicle specific data. The data to & from the TCU has to be streamed to a Connected Cloud Platform. Once the data is available, with the help of AI the vehicle and driver profile has to be established which can help in determining vehicle health, driver behaviour etc which can then feed into Insurance & Warranty. You need to:

1. Design & develop a cloud based connected vehicle platform to stream data to and from the vehicles. Assume vehicle volume of 10 lakhs scaled up to 100 lakhs globally (**Mandatory**).

Solve either of the below:

2. Develop an AI based solution for vehicle and driver profile from the data received - for each trip and overall rides till date. Edge compute for vehicle and rider scoring is also a part of the scope.
3. Determine and track multiple drivers (B2B or B2C) that may use the same vehicle or other vehicles so that their profiles can be separate but governed by the primary user/owner.

Additional Details:

- No additional hardware should be needed as part of your solution
- Assume that the vehicle has TCU developed to capture various data points and has SIM connectivity
- Solution should work for both ICE and EV

Potential Solution and Use Case:

While framing your solution, make sure you consider the following:

- For the connected platform, you can develop a full connected solution from scratch
- AI should be explainable - Open source algorithms can be used
- Assume data set for a two wheeler considering various parameters that the vehicle can generate and build the engine by training it and testing it
- Output should have quantitative as well as qualitative scores for the vehicles and drivers
- Algorithms can be different for ICE & EV considering that they both generate different types of data parameters
- The cost effectiveness of the solution proposed is important to attain- Cost per vehicle should be presented.



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Case Brief

Empowering Sustainable Mobility:
Electric Vehicles



BML MUNJAL UNIVERSITY™
A Hero GROUP INITIATIVE

Academic Partner

Function Name:

Centre of Innovation and Technology, Jaipur

Function Description:

Global Centre of Innovation and Technology (CIT) at Jaipur, Rajasthan is the place to innovate sustainable mobility solutions. CIT houses the best global technologies in product design & development, testing and validation; home to more than 1600 automotive experts with global and regional expertise.

Problem Statement:**Empowering Sustainable Mobility: Addressing Range Anxiety in Electric Vehicles by charging of EVs without compromising styling**

Electric vehicles (EVs) are gaining popularity as a sustainable mobility solution. Though, range anxiety raises concern among EV owners about running out of battery power during their journey, limiting confidence in relying on EVs. Range Anxiety is a big issue for the customer while making the purchasing decision for EV vehicle. This challenge seeks to address the range anxiety issue faced by EV owners with innovative solutions that enhance the overall driving experience and convenience of electric vehicles.

Moreover, EV's vehicles need to be recharged frequently as the current charging infrastructure is limited.

Your solution should address Consumer Appeal, Technical Feasibility, Cost and Design aesthetics. A desired solution in this direction can be a win-win situation for the customer as well as the business. Neat integration of proposed solution into the design will be preferred.

Potential Solution and Use Case:

Propose and design novel Hybrid and EV Battery solutions on –

- Charging through solar panels integrated with the vehicle
- Innovative battery cell technologies
- Power charging solutions
- Intelligent personalised range prediction, or
- Battery power optimisation

For example, solutions on body panels integrated with Solar panels for meeting the energy requirements of the vehicle should also elevate aesthetics of the vehicle. Thus, harnessing Solar energy by converting body trim parts into Solar



panels without compromising styling and aesthetic appeal of the vehicle.

Note:

The solution should be viable and scalable for commercial production. Substantial energy requirements of the vehicle should be met by the proposed solution. Aesthetics to the body of the vehicle should also be enhanced.