**4.2 Proposed Solution:**

**Proposed Solution Template**

| **Date** | **15 February 2025** |
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| **Team ID** | **LTVIP2025TMID47771** |
| **Project Name** | **Visualization Tool For Electric Vehicle Charge And Range Analysis** |
| **Maximum Marks** | **2 Marks** |

| **S.No.** | **Parameter** | **Description** |
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| **1.** | Problem Statement (Problem to be solved) | With the growing adoption of electric vehicles (EVs), users face challenges in understanding and optimizing charging behavior and range usage. There is a lack of user-friendly visualization tools that provide real-time and historical data insights about charging patterns, energy consumption, and estimated travel range. |
| **2.** | Idea / Solution description | The proposed solution is a visualization dashboard that allows users to analyze EV charging sessions, monitor range estimations, compare efficiency over time, and forecast energy needs. Using data analytics and visualization (via tools like Tableau or Power BI), users will be able to make informed decisions about charging habits, trip planning, and battery health. |
| **3.** | Novelty / Uniqueness | The uniqueness lies in integrating real-time vehicle data with dynamic visualizations, offering a comprehensive yet easy-to-understand overview. Unlike generic EV monitoring tools, this solution provides personalized visual analytics tailored to individual driving and charging behavior. |
| **4.** | Social Impact / Customer Satisfaction | By empowering EV users with data insights, the tool promotes efficient energy use, reduces range anxiety, and supports environmentally friendly practices. It contributes to sustainability and helps customers save time and money by planning better. |
| **5.** | Business Model (Revenue Model) | The tool can follow a freemium model: basic visualization features available for free, with advanced analytics, historical insights, and predictive modeling offered through a paid subscription. It can also be licensed to EV manufacturers or fleet operators. |
| **6.** | Scalability of the Solution | The solution can be easily scaled across different EV models, geographic regions, and fleet types. With cloud-based deployment and API integrations, it can be expanded to support more data sources, multi-user environments, and AI-powered forecasting modules. |