

**Project Design Phase-I**  
**Proposed Solution Template**

Date	23 September 2022
Team ID	PNT2022TMID42771
Project Name	Signs with smart connectivity for better road safety
Maximum Marks	2 Marks

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To proposed architecture use of machine learning as part of its road safety assessment core. This application facilitates assessments that are both dynamic and robust. We also showcase an application of the developed core aimed at safety-based route planning in smart cities.
2.	Idea / Solution description	Area of road safety management that is concerned with the characterization of driver behaviour. Tis characterization is enabled through the analysis of various inputs from either the transportation infrastructures, e.g., on road CCTV cameras, speed-sensors; other infrastructures, e.g., smartphones, reporting to services such as Waze or Google Maps, registrations to cellular-base stations; or in vehicle sensing setup. Combined or separated, baselines for “safe” or “responsible” driving can be synthesized, against which counter driving behaviour . Meanwhile, considerations for driver awareness or alertness can also be realized to extend identification to behaviours exhibited when driving under fatigue, distraction, or influence
3.	Novelty / Uniqueness	This work exploits smartphone cameras to monitor the driver’s alertness through recognizing head position and body orientation. It also utilizes the smartphone’s back camera to process the driver’s lane-change. Additionally, the system assists the user in detecting vehicles in the driver’s blind-spot and alerts the driver if a lane change is undertaken while another vehicle is occupying the blind-spot.
4.	Social Impact / Customer Satisfaction	Safe Vehicle- Base rating- Regulatory Checks Safe Road- Weather, criticality. it is possible to identify behaviours such as “exceeded speed limit”, “rolling stops”, “drowsy”, “sleepy”, “asleep”, and “fatigued”. To model also enables

		characterizing distracted driving, as well as the nature of distraction, e.g., “cell phone, texting”, “cell phone, holding”, and “passenger in interaction seat
5.	Business Model (Revenue Model)	Route planning has become widely used in both personal and commercial use, resulting in an increasing dependence on its reliability. Various applications employ efficient algorithms for route planning . Trip time and cost e.g., for tolls, have been the typical metrics for route planning applications, but other metrics, however, have been utilized, e.g., for fuel emission/consumption or energy requirements of electric vehicles.
6.	Scalability of the Solution	The introduced architecture facilitates robust and dynamic road safety assessment that complements the Safe System approach motivated by the World Health Organization (WHO), which has been increasingly adopted worldwide. An application of the dynamic assessment framework for route planning is also demonstrated. Future work involves exploring further applications, especially in the context of raising driver awareness of the road safety conditions during their trips.