Project Design Phase-I
Proposed Solution Template

Date	06 May 2023
Team ID	NM2023TMID04166
Project Name	Project - Drowsiness Detection and Alerting System

Proposed Solution Template:

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

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Drowsy driving can lead to accidents that result in significant property damage, injury, or death. These accidents can cause a financial burden on individuals, insurance companies, and society as a whole.The problem of drowsy driving is likely to become more significant as the use of autonomous vehicles increases.Therefore, there is a need for a reliable and practical solution that can detect drowsiness in real-time and alert drivers or autonomous vehicles' passengers before an accident occurs.
2.	Idea / Solution description	The proposed drowsiness detection and alerting system using the EAR algorithm can provide a solution to this problem.The system will use a camera mounted on the dashboard of the car to monitor the driver's eyes. The EAR algorithm uses computer vision to analyze the changes in the ratio between the length and width of the eye region to determine if the driver is getting drowsy. The system can also provide a warning if the driver's eyes are closed for an extended period, indicating that they may have fallen asleep.The algorithm is accurate and reliable, even in low light conditions, making it ideal for use in a car.If the system detects that the driver is getting drowsy, it will trigger an alarm or vibration to alert the driver to take necessary action, such as taking a break or pulling over.
3.	Novelty / Uniqueness	The proposed system uses the EAR algorithm, which is a unique approach compared to traditional systems The system can be customized to each driver's facial features and behavior, making it more accurate and reliable. The system can learn the driver's patterns and adjust the threshold accordingly, reducing the number of false alarms.The system can use different alerting mechanisms such as an alarm sound, vibration, or flashing lights to alert the

		driver. The alerting mechanism can also be customized based on the driver's preference.
4.	Social Impact / Customer Satisfaction	The proposed system can significantly reduce the number of accidents caused by drowsy driving, potentially saving many lives. Additionally, the system can provide peace of mind for drivers who often drive long distances or work long hours, knowing that they have a reliable system to keep them safe on the road.The system's customization features can provide a personalized experience for each driver, increasing their satisfaction with the product.
5.	Business Model (Revenue Model)	The drowsiness detection and alerting system can be sold as an aftermarket product to car owners or integrated into new cars as a feature. The system's data can be used to provide insights into the driver's behavior and potentially be sold to insurance companies. The system can potentially form partnerships with car manufacturers, insurance companies, and other stakeholders in the automotive industry. These partnerships can provide additional revenue streams and increase the system's adoption by car owners.
6.	Scalability of the Solution	The proposed system can be easily scaled up to meet the demand for the product. Additionally, the system can be integrated with other smart car features such as autonomous driving and parking, making it a valuable addition to the car of the future.