MSME IDEA HACKATHON 3.0 (Women)

Reference No. :- **INC23CTN019358**	
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4. HI/BI State	TAMIL NADU
5. HI/BI Name	NATIONAL ENGINEERING COLLEGE
6. Idea Sector	Healthcare & Life sciences, Medical Devices, Pharmaceuticals, Biotech, AYUSH and any related sub-sector
7. Title of proposed idea/innovation	Vehicles Accident Prevention and Safety Assistance using Artificial Intelligence
8. Briefly explain newness/uniqueness of the innovation	Preventing the driver from accidents by alerting when they feel drowsy. The Dlib 68 shape predictor dataset, unique and tailored specifically for drowsiness detection. This dataset contains specific annotations and features relevant to accurately detect drowsiness. By calculating the eye aspect ratio, focuses on a specific feature that can effectively indicate drowsiness and alert. The performance metrics such as accuracy, sensitivity, and false positive/negative rates are comparatively high.
9. Concept & Objective	People use vehicles in large numbers and the number of accidents taking place is increasing day-by-day due to Heart attack and Drowsiness of a driver etc. Drowsiness while driving is the leading cause of accidents worldwide. This is mainly due to the lack of sleep and long travel. Acountless number of people drive on the highway day and night. This work presents a novel proposal to detect drowsiness and gives an alert the driver to wake up. Thus the accidents can be prevented and the human lives will be saved from the accidents. Vehicle accident prevention and safety assistance is a crucial application in the field of computer vision and machine learning for road safety. It involves detecting the state of the drivers eyes using facial landmark detection to determine if they are drowsy or not. This proposed work to alert the driver when they are drowsy or distracted, thereby preventing accidents caused by fatigue or inattention. This system has the potential to save countless lives and reduce the number of accidents caused by driver fatigue. This work achieved 96.7 accuracy for detection
10. Specify the potential areas of application in industry/market in brief	The target customers include vehicle manufacturers who can integrate the drowsiness detection system as a part of their advanced driver assistance systems (ADAS) offerings. Additionally, transportation companies, and individual vehicle owners looking for aftermarket safety solutions are potential customers. This opens up opportunities for innovation and expansion into new markets, including autonomous vehicles and shared mobility services.

11. Briefly provide the market potential of idea/innovation	With increasing emphasis on driver safety and regulations promoting accident prevention, there is a strong market need for AI-based solutions like drowsiness detection. Collaborating with industry stakeholders, such as vehicle manufacturers, advanced driver assistance systems (ADAS) suppliers, can help strengthen market presence, expand distribution networks, drive commercialization efforts and increase the product value in market. By preventing accidents caused by drowsiness, reduce the number of vehicles involved in collisions. By preventing accidents, promotes smoother traffic flow, reducing overall fuel consumption and associated greenhouse gas emissions. This extends the lifespan of vehicles, reducing the environmental impact associated with manufacturing new vehicles and disposing of damaged ones.
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