

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

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Team ID	NM2023TMID12828
Project Name	Drowsiness detection and alerting system

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Real-Time Monitoring	The system should continuously monitor the user's physiological or behavioral parameters to determine their drowsiness level in real-time.
FR-2	Data Acquisition	The system should acquire relevant data from sensors or devices, such as electroencephalography (EEG), electrooculography (EOG), heart rate monitors, or video cameras.
FR-3	Drowsiness Detection Algorithms	The system needs to employ algorithms capable of analyzing the acquired data to detect signs of drowsiness accurately. These algorithms may include machine learning techniques, signal processing methods, or a combination of both.
FR-4	Drowsiness Indicators	The system should provide indicators or metrics that represent the level of drowsiness detected, such as a drowsiness score or a categorical alert level.
FR-5	Alerting Mechanism	When the system detects significant drowsiness, it should generate appropriate alerts to inform the user. Alerts can be in the form of visual cues, auditory signals, haptic feedback, or a combination of these, depending on the user's preferences and the context of use.
FR-6	User Interface	The system should provide a user-friendly interface, allowing users to interact with the system, view drowsiness-related information, and configure settings if needed.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	the drowsiness detection and alert system can ensure that users can easily interact with the system, understand their drowsiness status, and

		respond appropriately to prevent accidents or mitigate the effects of drowsiness.
NFR-2	Security	security considerations, the drowsiness detection and alert system can maintain the confidentiality, integrity, and availability of user data, and provide users with the assurance that their information is protected.
NFR-3	Reliability	reliability considerations, the drowsiness detection and alert system can provide consistent and accurate performance, ensuring user confidence and enhancing the overall effectiveness of the system.
NFR-4	Performance	Performance metrics and conduct rigorous evaluation of the system's performance. Measure and analyze metrics such as detection accuracy, false positive rates, and response times to identify areas for improvement and validate the system's performance against established benchmarks.
NFR-5	Availability	the drowsiness detection and alert system can ensure uninterrupted operation, providing users with reliable access to the system and timely alerts to prevent drowsiness-related incidents.
NFR-6	Scalability	Ensure that the system can handle increasing data volumes and accommodate a growing user base without sacrificing performance. Design the system to scale horizontally by distributing the processing load across multiple servers or devices. Leverage cloud-based services or distributed computing architectures for scalability.