

ABSTRACT

Fatigue detection model

This project aims to develop a machine learning model for early detection and classification of fatigue levels to reduce accidents caused by fatigue. The model utilizes various dependent factors such as heart rate, sleeping patterns, food consumption, blood pressure, etc., to determine the level of fatigue. Statistical anomaly and mean deviation methods are employed to detect irregular patterns and calculate a threshold value for fatigue prediction, which is used to classify the fatigue level into levels 1, 2, and 3.

In addition to predicting the fatigue level, the machine learning model also generates a personalized risk profile for an individual based on their occupation, work schedule, lifestyle, and fatigue level prediction. This approach provides a more comprehensive and tailored approach to fatigue management, enabling individuals to take proactive measures to prevent fatigue and reduce the risk of accidents.

Employers and organizations can also use the risk profile to identify high-risk individuals and implement appropriate measures to mitigate the risk of accidents, such as scheduling breaks, providing rest areas, or adjusting workloads.

Overall, this project contributes to the development of advanced machine learning models for better safety and performance in various fields, including transportation and other industries that rely on human performance. The proposed model can also be extended to real-time fatigue monitoring using wearable devices, making it more convenient and accessible for individuals and organizations alike.