SafeBeat – Predicting Sudden Heart Attacks Using an Intelligent Health Monitoring System Featuring Personalized Diagnostics

Ouragini, Amine (School: Lycee Les Elites)
Brahim, Youssef (School: Lycee Rue Fattouma Bourguiba)

This is a new direction in the development of athlete health monitoring and the analysis of performance in relation to maximum capacity. A crucial and important aspect in both amateur and professional sports. This project consists in designing and building a small, affordable smart vest that will help athletes and coaches keep an eye on physical performance and detect potential health risks. The smart vest is continuously providing the mobile application with live monitored data and informations. The collected data will rely on many physiological variables, especially heart rate, oxygen saturation, and ECG signals, which provide valuable insights into the athlete's health status, exertion level, and possible abnormalities during training or competition. That is why we aimed to analyze these physiological signals to detect physical or cardiac anomalies and provide performance diagnostics. The diagnostic system consists of comparing real-time data with theoretical maximums, and providing a personalized performance profile indicating proximity to physical limits. The development of this real-time athlete monitoring system will not only help athletes track their training progress and collect useful data but also prevent injuries, improve performance, and ensure their well-being during physical activity.

Awards Won: