

ABSTRACT

The growing popularity of running is accompanied by an increased risk of running-related injuries (RRIs) often driven by confusion in determining a safe training program tailored to individual capabilities. This study aims to design, develop, and evaluate RUN-IO, a mobile application that provides personalized training recommendations to minimize such risks. Utilizing the Random Forest Regressor algorithm, the application processes user data (age, height, weight, and gender) to predict three key parameters: Running Speed, Running Time, and Running Distance. The model was trained on the “Running Calorie Burn” dataset from Kaggle and evaluated using Mean Absolute Error (MAE) and R-Squared (R^2) metrics. Evaluation results demonstrate that the prediction models meet the criteria for implementation, with the Running Speed model showing superior performance by achieving an R^2 score of 0.8990 and an MAE of 0.56 km/h. Furthermore, functional testing and user interface evaluations confirmed the application's high usability and positive reception, providing a practical tool for runners to train more safely and effectively that can minimize injury of happening.

Keywords: Mobile Application, Running Related Injuries, Running, Random Forest Regressor, Personalized Training