BODY FAT ESTIMATOR USING ENSEMBLE METHODS

ABSTRACT

Obesity or excessive body fat, is a critical public health problem that can cause serious diseases. Although a range of techniques for body fat estimation have been developed to assess obesity, these typically involve high-cost tests requiring special equipment. Thus, the accurate prediction of body fat percentage based on easily accessed body measurements is important for assessing obesity and its related diseases. Machine learning models, particularly hybrid models, have a strong ability to analyze challenging data and perform predictions by combining different characteristics of the models. The hybrid machine learning models based on support vector regression (SVR), emotional artificial neural networks (EANN), adaptive boosting, extreme gradient boosting are used for accurate BFP prediction using a primary BFP dataset. The analysis and prediction of BFP using a higher amount of data in terms of instances, including both genders, and minimized number of attributes could provide more accurate prediction rates. Designing an ensemble method is to aggregate the predictions of individual base models, effectively mitigating the weakness of any single model and improving the overall estimation. The ensemble methods are used to outperform individual models and achieve remarkable accuracy in predicting body fat percentage.

Team Members

K. Supriya - 20wh1a1225

S. Ashwitha - 20wh1a1235

E. Mamatha – 21wh5a1206

Internal Guide

Ms. P. Nikitha

Assistant Professor