

## ABSTRACT

*Stunting remains a serious problem in under-five nutrition in Indonesia, with economic factors, lack of nutrition education for mothers, and poor environmental sanitation exacerbating the condition. Although several stunting prevention apps exist to monitor the health of pregnant women, there is still a lack of tracking features and nutrition recommendation systems and in areas with high stunting rates, many pregnant women do not realize the long-term impact of malnutrition on the development of the baby. They often eat without paying attention to the nutritional content needed. This research develops a tracking feature and nutrition recommendation system for pregnant women using the K-Nearest Neighbor (KNN) algorithm for the recommendation system, which is implemented through the Extreme Programming method in three iterations. Evaluation of the application was carried out with the User Acceptance Test (UAT), resulting in values of 84.8%, 87.2%, and 88% from the first to the third iteration. The recommendation system shows a low Root Mean Square Error (RMSE) value on the Euclidean metric with  $k=6$ , which is 0.0257. The relevant test conducted by four nutritionists through a form given eight food tests and five recommendation results in each food showed a relevant of 80.625%. Based on the evaluation results, this application provides convenience for pregnant women in monitoring the intake of nutrients, calories, and other important nutrients that pregnant women consume, while the nutrition recommendation system using the K-Nearest Neighbor algorithm tailored to the needs of pregnant women provides more specific guidance and helps them to make smarter eating decisions and support optimal health.*

*Keywords: K-nearest neighbor, Extreme Programming, Tracking, Recommendation System*