

ABSTRACT

Stunting is a critical health issue affecting children's growth, especially in Indonesia, which has a stunting prevalence of 21.5% in 2023. The impact of stunting includes irreversible impairments in child growth and development, increased risk of morbidity and mortality, delayed development of motor and mental skills, reduced intellectual capacity and productivity, and an increased risk of degenerative diseases in the future. The urgency of addressing this issue drives this research to design a toddler height prediction feature in the mobile application Genting using the You Only Look Once (YOLO) algorithm. The application is developed using Extreme Programming (XP) methodology, which allows for high flexibility and collaboration between the development team and users, with short iterations and quick feedback for efficient problem-solving. The development process involves several testing iterations, where user satisfaction is measured using the System Usability Scale (SUS), showing an increase in SUS scores in each iteration: 89 in the first iteration, 88.75 in the second, and 87.5 in the third. Accuracy evaluation of predictions using Mean Absolute Percentage Error (MAPE) recorded results of 91.71% in the first iteration, 94.43% in the second, and 95.31% in the third. Performance evaluation using Precision, Recall, and F1-Score metrics also showed improved accuracy and prediction consistency. This application is expected to be an effective tool in supporting stunting prevention through more accurate and efficient monitoring of child growth and to make a significant contribution to public health improvement efforts.

Keywords: *Stunting, You Only Look Once, Prediction Accuracy.*