

ABSTRACT

Stunting is a significant health problem that affects children's growth, especially in developing countries. Accurate height measurement is very important to identify stunting in toddlers, however conventional methods such as using infantometers and stadiometers often face obstacles, especially in terms of process efficiency when dealing with uncooperative toddlers. This research aims to develop a toddler height prediction feature based on the Convolutional Neural Network (CNN) algorithm on the GENTING website application, with a focus on increasing the effectiveness of the toddler height measurement process. The CNN model is designed to accurately predict the bounding box on the toddler's body in the image, allowing identification of the toddler's position and height dimensions in pixels. These prediction results are then converted into height measurements by considering factors such as image dimensions in pixels, camera distance, and camera viewing angle. The development process involved several testing iterations, where the accuracy of the measurement results was calculated using Mean Absolute Percentage Error (MAPE) and evaluation of user satisfaction was carried out through User Acceptance Testing (UAT). Over three test iterations, the measurement feature showed a MAPE of 11.06%, an average accuracy of 88.94%, and an average difference between actual height and predicted results of 10.31 cm. UAT shows that this feature was well received by users at Posyandu, with an average satisfaction level of 89.6% and 86,4% in two different test iterations. With further improvements, it is hoped that this application can make a significant contribution to the detection and treatment of stunting, as well as help improve the health and growth of children throughout the world.

Keywords: Stunting, Child Growth, Convolutional Neural Network, Height Measurement, Bounding Box.