ABSTRACT

Obesity has become a global health problem, even the World Health Organization (WHO) states that obesity is a global epidemic that is a health problem that must be addressed. In 2016, WHO stated that 39% of people over 18 years were overweight and 13% of people were obese. In Indonesia, based on the Riskesdas 2018 by the Ministry of Health of the Republic Indonesia there are data on the prevalence of obesity with age over 18 years as much as 15.4% and for overweight as much as 13.46%, so the overall prevalence is 28.86%. One way to reduce the problem of obesity is to do the Body Mass Index (BMI) calculation, but the BMI calculation requires a weighing device and a height gauge that is not available in every place.

Based on these problems, this final project designed a calculation system that can measure body weight using face images and height. Face image processing is used as a substitute for weight based on face area, while height still uses original measurements. Image data used were 30 objects with details of 15 male objects and 15 female objects, as well as image capture conducted at distances of 100 cm, 125 cm, 150 cm, 175 cm, 200 cm, 225 cm, and 250 cm. After the weight and height from digital image processing is obtained, the BMI calculation and its criteria can be performed.

The results of this study resulted a correlation coefficient of 92,11% and a coefficient of determination (R^2) of 84,84%. The best image acquisition for BMI calculation is at a distance of 100 cm. The best BMI calculation uses the method of calculating the number of pixels with an accuracy value of 80% of 30 data which means there are 24 accurate data based on BMI criteria, namely: Underweight I, Underweight II, Normal, Obesity I, and Obesity II.

***Keywords**: Body Weight, Body Mass Index, Face Image, Face Area, Digital Image Processing, Height*