ABSTRACT

Nutrients are essential substances for the body for metabolic processes. The fulfillment of nutrients can help the body to grow, maintain endurance, to help the body to obtain energy sources. However, according to UNICEF, Indonesia currently ranks high in the status of malnutrition. If these conditions are left unchecked, the number of people who are malnourished can increase by up to 15 percent. Thus, a tool is needed to measure the nutritional content of food.

This final project is one of the efforts to reduce malnutrition by designing a food nutrition measuring instrument. This tool is in the form of a scale that will measure the weight of food. The weight of the food is converted into nutritional value consisting of air, energy, protein, fiber, carbohydrates, and fat. The measurement of food weight uses four load cell sensors with the HX711 module connected to the ESP 32 microcontroller. The weight of the food is displayed on the OLED display and sent to the Android application with the help of Firebase. The weight value that has been converted into nutritional value can be seen in the Android application.

From the results of the design with a connectivity time of 10,052 seconds, the tool gets an accuracy value 92 % from load cell-1, 81% from load cell-2, 87% from load cell-3, and 90% from load cell-4. Meanwhile, the tolerance parameter for each load cell is 11%. So that the load cell will be accurate if the value of the weighing scale has an uncertainty value of ±4.32 grams in load cell-1, ±5.07 grams in load cell-2, ±4.77 grams in load cell-3, and ±4.02 grams on load cell-4.

Keyword: Nutrition, ESP 32 microcontroller, load cell HX711 module.