ABSTRACT

Blood glucose is a substance to be burned to get energy. Measuring blood glucose value using glucometer is very important, especially for people with Diabetes Mellitus to prevent as early as possible to avoid complications getting worse. Glucometer still done by invasive methode (injuring body tissue). This can make patients feel uncomfortable when measuring blood glucose levels. Given the importance of the measurement of blood glucose, the authors developed it with non-invasive techniques through the difference temperature in tragus and antihelix of ear so that patients feel comfortable when measuring blood glucose.

Non-invasive blood glucose measurement is done by converting the value of tragus and antihelix temperature differences then compared with reference blood glucose, reference temperature, and normal HbA1c. In this module the PT100 temperature sensor is used for temperature measurement at the tragus and antihelix points in the ear. Then processed by Arduino microcontroller until there is a result of blood glucose value which is then displayed on the LCD and can be done with data storage maximum 10 times storage.

Based on the measurement and comparison of data with comparable results obtained error of 6,37% on the measurement of blood glucose with the sensor on left ear, and 5,17% on the measurement of blood glucose with the sensor on the right ear.

Keywords: Glucose, Temperature, PT100, Glucometer