ABSTRACT

Magnets are objects that can attract other objects around them. Magnets have two unique poles, the north pole (N) and the south pole (S), which is the end of the magnet with the strongest magnetic field. Determining the poles on a magnet is a challenge for the industry because errors in determining the magnetic poles can pose a risk to products and the environment in the industry. Incorrectly determining the magnetic poles can result in decreased efficiency and system performance of products that depend on the correct magnetic field. Therefore, a tool is needed that can determine the north and south poles more accurately and determine the level of accuracy of the hall effect sensor. The device consists of a hall effect sensor, ESP32, 12C LCD and antares. Testing of the device aims to determine the accuracy of the hall effect sensor in measuring magnetic flux and detecting the north pole and south pole. The results of the test show an accuracy value of 98.35% at a distance of 0.5 cm to 70% at a distance of 2.6 cm for the north pole and an accuracy value of 99.48% at a distance of 0.5 cm to 71.25% at a distance of 3.2 cm for the south pole. Based on testing of labeled bar magnets, the hall effect sensor can determine the magnetic pole. This is shown by the LCD response that displays the type of magnetic pole (north or south) when the magnetic pole is brought closer to the sensor. To improve the flux accuracy, further research can use more sophisticated sensors, stronger magnets, or different software.

Keywords **: Antares, ESP32,** ***Hall effect Sensor,*** **LCD 12C, Magnet**