

ABSTRACT

In physics experiments, tools are needed to carry out physics practicum regarding magnetic fields in solenoids. In measuring the strength of the magnetic field in an object, a measuring instrument is needed that can determine the value of a variable, namely, a Teslameter. The tool is very expensive so it is not affordable and the tool can only be operated in the laboratory and the data from the measurements is written manually. The aim of this research is to make a magnetic field measuring instrument based on the Internet of Things (IoT) and to analyze the accuracy of the sensor and to analyze the effect of current and distance on the solenoid. The method used in this study is the selection of a microcontroller based on the Internet of Things (IoT), namely ESP8266. Then the magnetic sensor used is the BMM150 sensor to measure the magnetic field strength which can measure from three abscissa and displays the total magnetic field measured in the solenoid using the vector formula. So that when conducting experiments the output can be directly seen on the LCD and the Thingspeak website in real time with measurement data stored on the platform. The results of this study indicate that this magnetic field strength measuring instrument can be said to be good because it has the lowest accuracy rate of 92.29% and for a precision level above 93.19%.

Keywords: *ESP8266, Internet of Things, Magnetic Field, Solenoid, BMM150 Sensor, Thingspeak*