

ABSTRACT

In this study, the author developed a learning medium for electromagnetic induction. The development of the tool was carried out through innovation, namely the manufacture of an electromagnetic induction device with an instrumentation-based letter u wire which uses a stepper motor driven by the ULN2003 driver through the Arduino Uno program, the motor is used to drive the conductor rod which aims to change the cross-sectional area of the circuit and also uses the INA219 sensor to find out the current and voltage on the wire.

This research aims to understand the design of electromagnetic induction system tools, and can find out the control system in electromagnetic induction. The results of this design determine the direction of the current, the value of the detected current and voltage as well as the effect of the speed on its induction emf. The difference in the results of measurements and manual calculations is caused because the value of the circuit is still too small so that it cannot be detected by the INA219 sensor. Manual calculation value of GGL Induction of 3 speed variations namely $2.28 \times 10^{-4}\text{V}$, $1.959 \times 10^{-4}\text{V}$, $1.571 \times 10^{-4}\text{V}$.

In this study, it can also be seen the effect of speed on the value of induction emb. The greater the speed produced, the greater the induction gear obtained from the circuit.

Keywords: *Electromagnetic Induction, GGL induction, INA219.*