

# ***DESIGN OF AUTOMATIC COIL WINDING TOOL BASED ON ARDUINO UNO R3***

*Name of Student : Yogi Harianto*

*Student ID Number : 3103201216*

*Supervisor : Zulkifli, S.Si., M.Sc.*

## ***ABSTRACT***

*The electromagnet coil or often called the coil is made by rolling the wire on a core. If an electric current is applied to the coil, a magnetic field is generated. To obtain a strong magnetic field requires a lot of winding and a good type of wire. The wire commonly used is enameled wire. From the results of making the overall tool design there is an Arduino Uno as the main controller, the FC-03 Optocoupler IR sensor to calculate the number of coiled turns and the value is displayed on the LCD. When the input value has been entered using the keypad, the DC motor rotates to roll the coil according to the input and the FC-03 sensor to read the number of turns. With different variations in the number of turns obtained the average time and error, in testing the average time required for 50 turns is 18.5 seconds with an error of 2.4%, the average time required to make 100 turns is 36.5 seconds with an error of 0.75%, the average time required to make 150 turns is 54.3 seconds with an error of 1.6%. In the calculation of a 100 mm mall with a wire diameter of 0.4 mm, the result is 250 turns for 1 layer with an average time of 85.8 seconds and an error of 1.5%.*

***Keywords:*** *Arduino Uno, optocoupler, keypad*